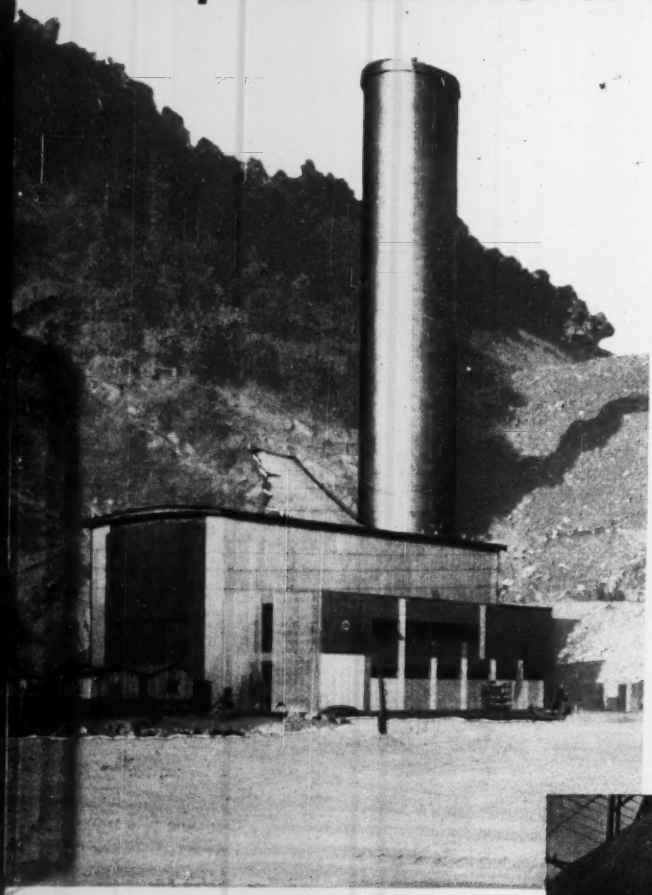
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

Horton Surge Tank and Tunnel Lining help harness river at South Holston Dam



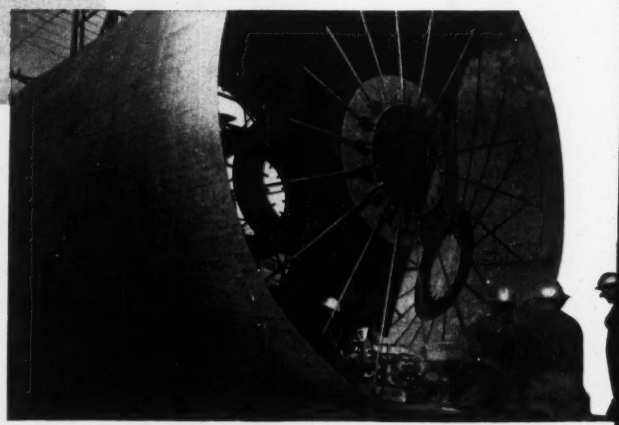
Here are two examples of what Chicago Bridge can provide. Both are located at the new earth and rock fill dam on the South Fork of the Holston River near Bristol, Tennessee.

The welded-steel surge tank shown at the left is 35 ft. in diam. by 187 ft. high. It is connected to the conduit that furnishes water to the turbine in the powerhouse and supplies the necessary water when there is a sudden demand for more . . . or stores water when the load is put on the turbine and water velocity in the power conduit is decreased. (The powerhouse is the structure below the surge tank.)

The view below shows workmen fabricating a section of 15-ft. diam. welded-steel tunnel lining. This lining is used for 845 ft. of the 1200 ft. conduit that carries water from the forebay to the turbine. The internal "spiders" hold the rings of the steel lining in shape until concrete is poured around them. The "spiders" are removed after the concrete sets.

We also supplied the welded-steel riser, 14 ft. in diam. by 79 ft. long, that connects the surge tank to the steel tunnel lining.

We make smaller steel plate structures too . . . water and oil storage tanks for example. In fact, our nearest office can give you specification assistance or offer quotations on almost any type of steel plate structure. You are invited to write.

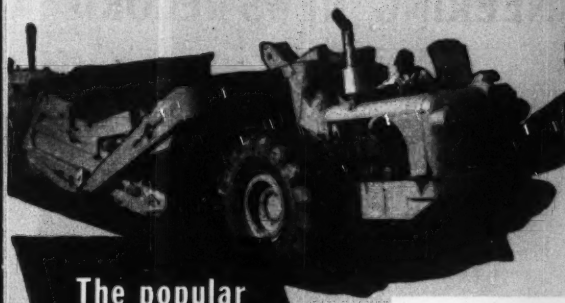


The views on this page show a surge tank (above) and a steel tunnel liner (right) we fabricated and erected for the South Holston Dam near Bristol, Tenn.

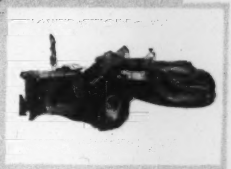
When completed, the South Holston Project will provide about 350,000 acre-feet of normal storage for flood control and will develop 35,000 kilowatts of electrical power.

CHICAGO BRIDGE & IRON COMPANY

The great line of LaPLANT-CHOATE Earthmovers



The popular MOTOR SCRAPERS



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WHEN your job calls for moving big volumes, you can bank on the high production features of the big TS-300 Motor Scraper. Big capacity . . . 14-cu. yds. struck and 17.5-cu. yds. heaped. Speeds in excess of 22 mph. Easy loading and positive forced ejection cut seconds off the operating cycle. Big power . . . with your choice of two Diesel engines—Buda 6-DAS 844 at 280 HP, or Cummins NHS-600 at 275 HP. Investigate *all* the profit-making features of the TS-300 today!

TW-300 MOTOR WAGON
HERE'S a hydraulically controlled bottom dump wagon flexibly joined to the same tractor used on the TS-300 Motor Scraper. 14- to 19-cu. yd. capacity, high speed and rugged power, plus many other money-saving features make this an outstanding unit.

TS-200 MOTOR SCRAPERS
The TS-200 is a 9- to 12-yd. hydraulically controlled earthmover small enough for small yardage jobs, yet with all the capacity, power and speed necessary for high production on your long haul jobs.

LaPLANT-CHOATE CABLE and HYDRAULIC SCRAPERS

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FOR short hauls with track type tractors, you can't beat the performance of C-314 Cable Scrapers. 14-cu. yd. capacity struck, 17.5-cu. yd. heaped. Designed for use with tractors of more than 110 HP. Easily converted for use with T-300 Tractor to become high-speed TS-300 Motor Scraper.

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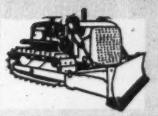
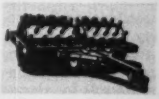
C-108 and C-106 CABLE SCRAPERS
The C-108 is an 8.4- to 11-cu. yd. scraper for use with tractors of 75 to 110 HP. The C-106 has capacities from 6.1- to 7.5-cu. yds. and is ideal for use with 55 to 75 HP tractors. Both scrapers have the same outstanding performance characteristics as the larger C-314.

There is a size and type of LaPlant-Choate Scraper for every earthmoving job — see your LPC distributor today.



LaPlant-Choate DOZERS
Famous LPC Dozers, both angling and straight blade, are available in hydraulic types in D2, D4, D6, D7 and D8 sizes, or in cable-operated types in D7 and D8 sizes.

LaPlant-Choate RIPPERS
The Model RP-82 heavy-duty three-tooth ripper for use with large size tractors.



LaPlant-Choate TAMPERS
LPC Tampers are available in two popular sizes — the DSR 224 double drum and the TSR 336 full oscillating triple drum.

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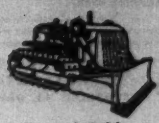
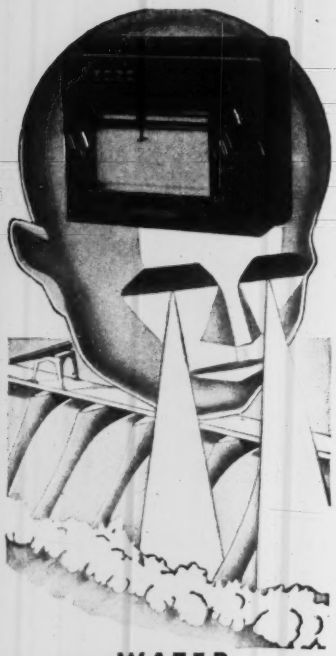
Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of track-type tractors.

3- and 4-yd. Scrapers for track-type and rubber-tired industrial tractors.



Hydraulic and Cable-operated Dozers.



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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 146 — MAY 31, 1951 — No. 22

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Solving a sewer-line paradox 28

Ship terminal for fast cargo handling 32

Continuous girder bridges made less costly 36

Garage roof supports housing units 39

Perspective—Postscript from Pittsburgh 96

DEPARTMENTS

Construction Week	17	Education, Research	53
Construction Trends	19	Meetings	54
Editorials	21	Obituaries	55
News of the Week	23	Labor	57
Reader Comment	42	Construction Business	59
Municipal	44	Unit Prices	61
Foreign	47	Construction Reports	62
Men and Jobs	50	New Products	87

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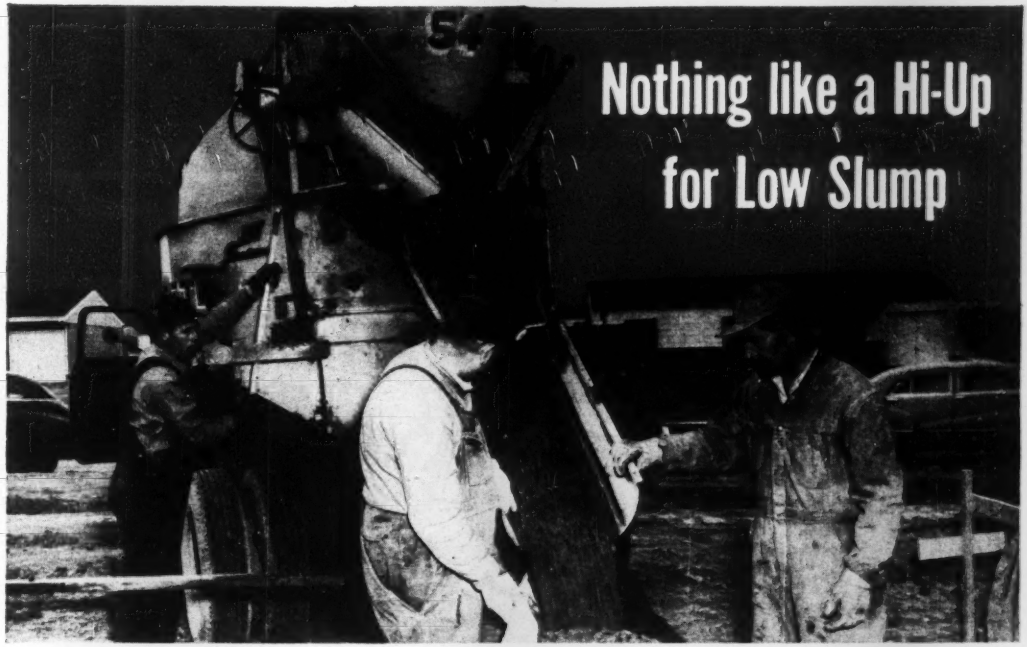

All over the country, Worthington-Ransome Hi-Up Truck Mixers are out-performing other makes!

Photo of 4½ cu yd Worthington-Ransome Blue Brute Hi-Up Truck Mixer fleet operated by Concrete Inc., Denver, Colorado.

Photo of 5½ cu yd Worthington-Ransome Blue Brute Hi-Up Truck Mixers operated by Lattanzio Transit Mix Co., Inc., Schenectady.

Compare them on the basis of charging and discharging time . . . compare them on the basis of maintenance—

You'll find that Worthington-Ransome Blue Brute Hi-Ups score way ahead of other makes.

You'll surely want to experience results like these—

Fred D. Hoppe, vice-president, Concrete Inc., Denver, says, "Charging and unloading time is the lowest in our fleet of 26 units. We particularly like the way they discharge low and no-slump concrete. We experience less 'down time' with these machines than anything else in our fleet." Mr. Hoppe purchased *six more!*

Lou Lattanzio, Lattanzio Transit Mix, Schenectady, says of his 5½ cu yd Hi-Ups: "We are very pleased with the discharge rate even with low-slump concrete. There has been no appreciable mechanical trouble." Mr. Lattanzio "expects to standardize on Hi-Ups."

So join the growing list of Hi-Up fleets, which include Pine Hill Concrete Mix, Inc., Buffalo—over 40 Hi-Ups; Southern Materials Corp., Richmond and Norfolk—over 20; Buzby Brothers, Westville, New Jersey—over 20; Fenton Materials Co., San Diego—over 20.

See your nearby Worthington-Ransome distributor for a demonstration. Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, New Jersey.

BUY BLUE BRUTES

WORTHINGTON

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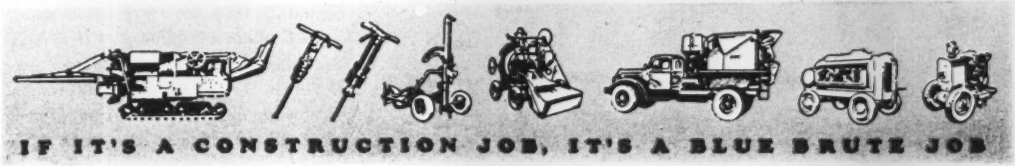
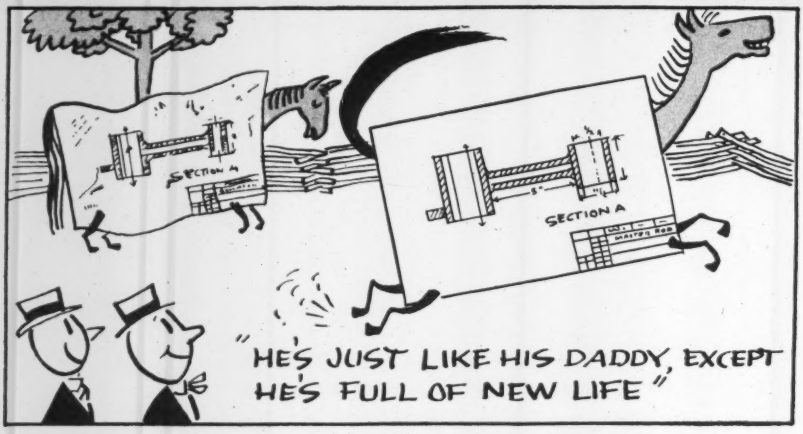


IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB



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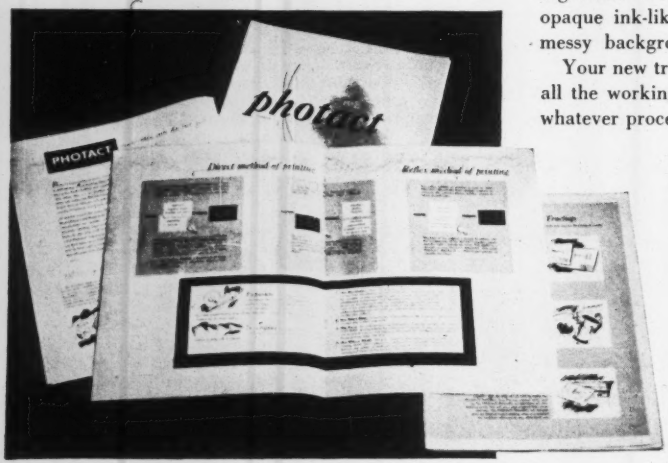

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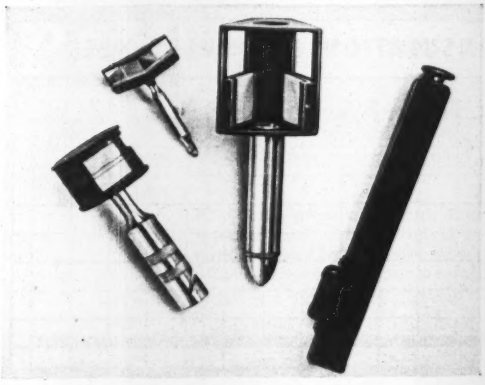

There's a laugh in many a graph

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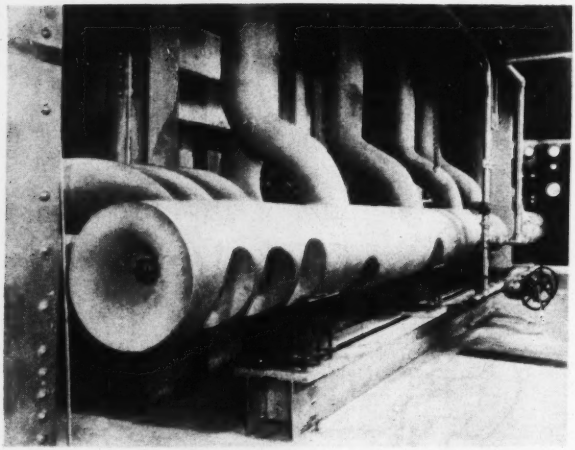

Boiler and furnace header in the Riverside Power Plant, Lake Charles, La., of the Gulf States Utilities Corporation, Beaumont, Texas. **Insulation Contractor:** Armstrong Cork Company.

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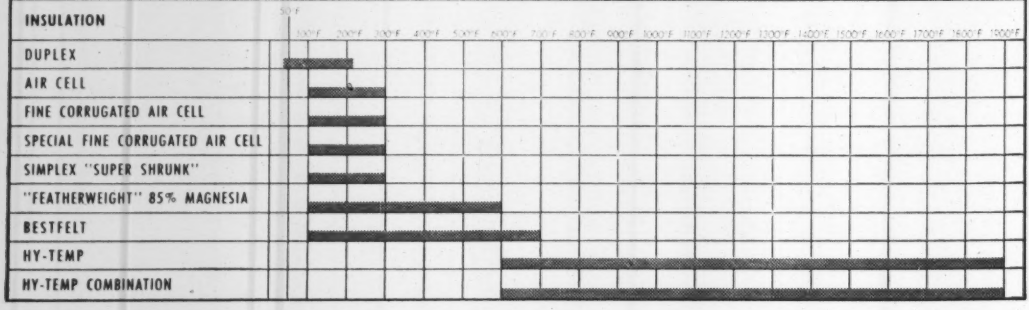

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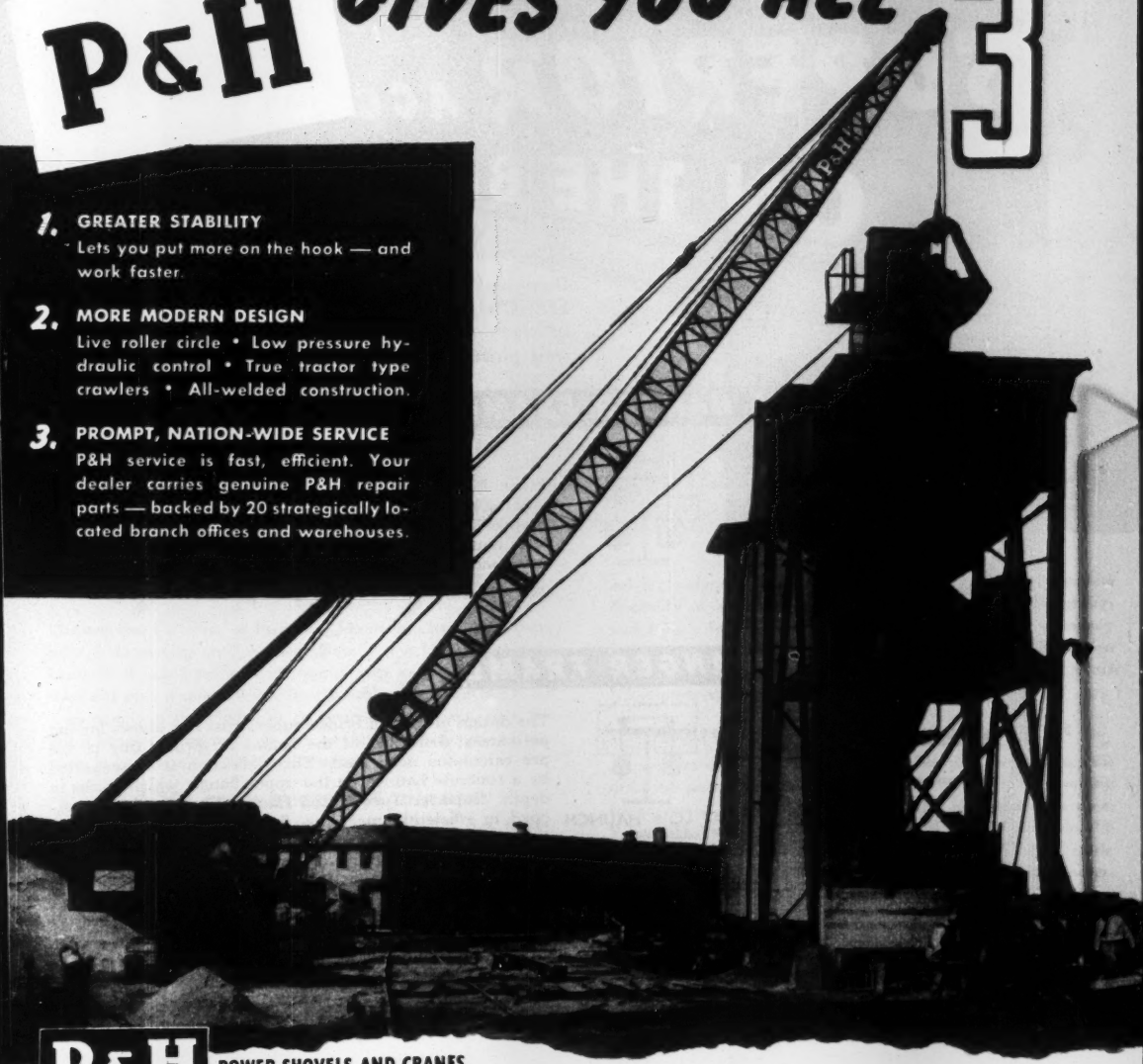

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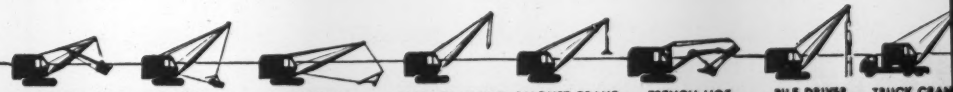

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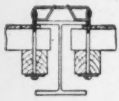
SUPERIOR ACCESSORIES ON THE BEAM

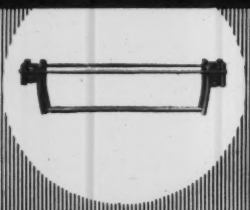
Designed to meet field conditions on BRIDGE SUPERSTRUCTURES, these three types of Hangers provide efficient means for hanging forms from steel beams and girders, not fireproofed.

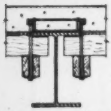
STANDARD COIL HANGER FRAME



When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts is 4,500 lbs., or 2,250 lbs. per bolt.

SPECIAL COIL HANGER FRAME



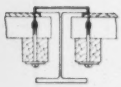


AT LOW HAUNCH

AT HIGH HAUNCH

The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch on the upper flange, which varies in depth. Superior *Special* Coil Hanger Frames were developed to efficiently meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" Coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail at left.) Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt.

COIL BEAM SADDLE



Superior Coil Beam Saddles are used, as shown at left, where hanger wires may be cut after stripping the forms. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

NOTE: WORKING PARTS (Bolts and Washers) are returnable. Layouts and estimates for Superior Hangers are available without cost or obligation.

Request a copy of our **NEW CATALOG 500**

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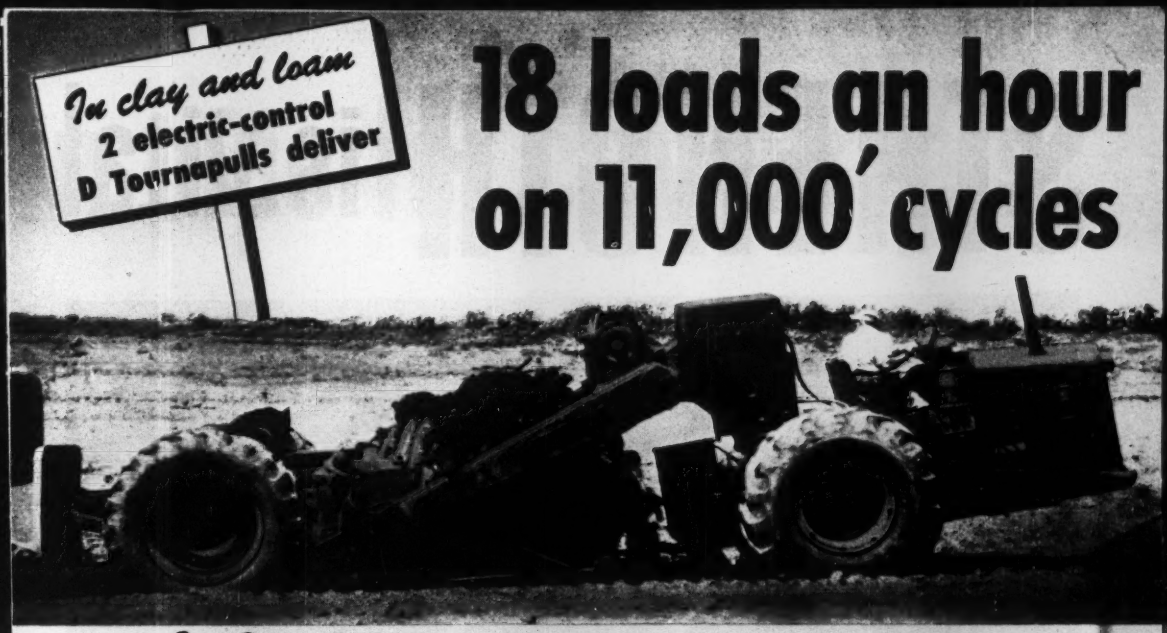
New York Office: 1775 Broadway, New York 19, N. Y.

Pacific Coast Plant: 2100 Williams St., San Leandro, Calif.



18 loads an hour on 11,000′ cycles

J. K. Hodgman

Construction Co., Inc., of Fairmont, Minnesota, had 210,000 cu. yds. of dirtmoving on 7 miles of State Trunk Highway 4 near Dunnell. Hauls from roadside borrow pits to grade frequently extended over a mile. With these 2 rubber-tired, 28 m.p.h. D Tournapulls in the Hodgman equipment fleet, it was easy for this Minnesota contractor to put his long-haul dirt on a fast-cycle basis. Here's typical performance:

11,000′ cycle every 6.4 minutes

Working with a pusher in the borrow pit, each 122 h.p. Roadster loaded 5½ pay yards of dry clay loam in 48 seconds. Haul, dump, and return on 11,000-foot cycle took only 5.6 min. Making a round trip every 6.4 min., each "D" delivered 9 loads an hour. Combined output for the two high-speed, electric-control Tournapulls averaged 99 pay yards hourly.

"Place for 'D's' on any Job"

Ability of these handy rigs to handle production work, as well as to self-load on occasional utility dirtmoving assignments, gives the Hodgman organization complete flexibility of application on all their contracts. "I can always find a place for my D Roadsters on any job," reports Company President, J. K. Hodgman, who has also used these "D's" on construction of secondary county roads and Class I and Class III airports throughout Minnesota.

Average 20 m.p.h. through traffic

As soon as one of these contracts is finished, the Tournapulls drive off under their own power to the next job. No waiting for trailer . . . no loading delays . . . less non-productive time. When Mr. Hodgman started this Dunnell job, for example, the "D's" drove over main highways from Blue Earth . . . and made the 50-mile trip through traffic in just 2 hours and 20 minutes.

Ability to deliver more yards per hour . . . handle more jobs per year . . . earn more profit per job is the reason why successful dirtmovers everywhere are turning to high-speed, electric-control Tournapulls. Ask your LeTourneau Distributor to show you what these rubber-tired "D's" can do for *you*. Call, or write him TODAY.

Roadster highballs down well-graded haul road . . . averages 22 m.p.h. on 5500′ trip loaded . . . 26 m.p.h. on return, empty.

Tournapull—Trademark Reg. U.S. Pat. Off. R203b

Mail today to: R. G. LeTOURNEAU, Inc., Peoria, Illinois

Please send ☐ Specifications ☐ Price ☐ Job performance reports on 7-yd., 122 h.p. D TOURNAPULL

Name_____ Title_____

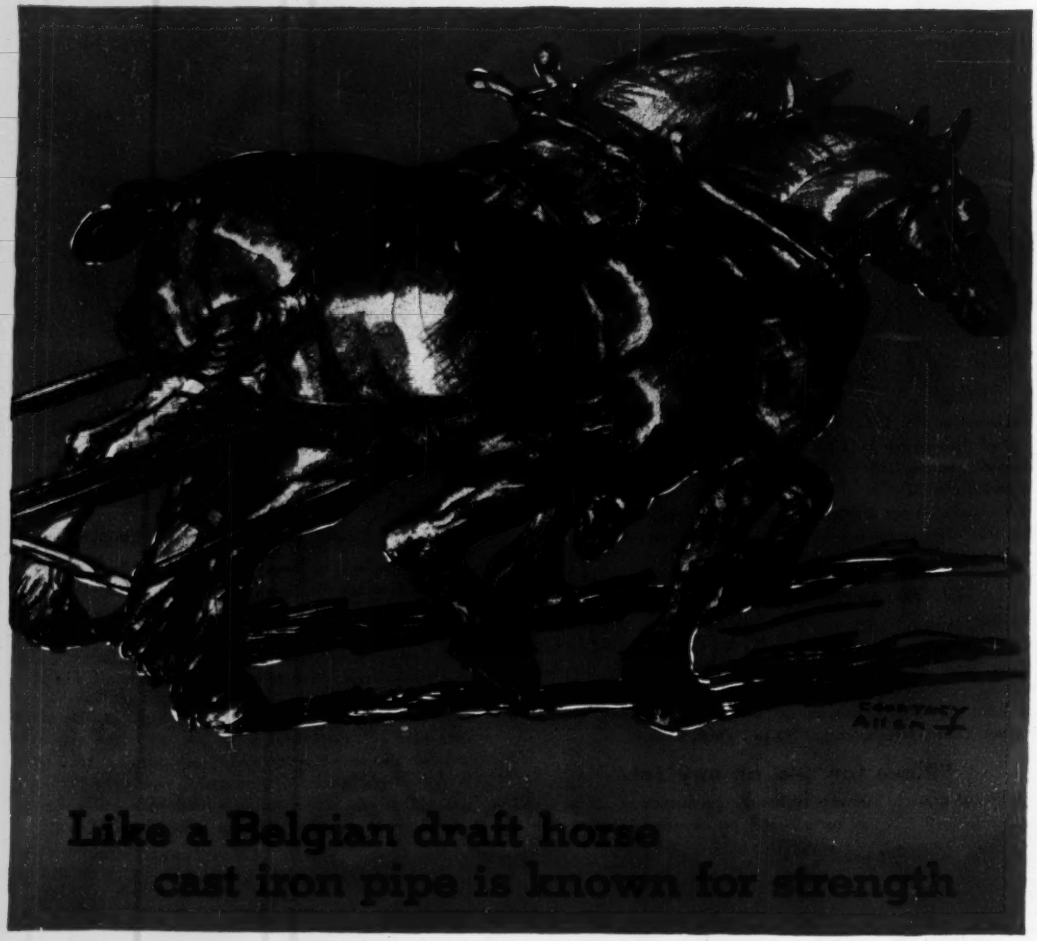
Company_____

Street_____ City, State_____

Type of work to be handled_____

Would also like information on ☐ 13.5-yd. C Tournapull ☐ 30-yd. B Tournapull

STRENGTH is vital



Like a Belgian draft horse cast iron pipe is known for strength

Be doubly sure when you specify pipe for mains to be laid under city pavements. Sure that it effectively resists corrosion. Sure, also, that it has the four strength factors, listed opposite, that pipe must have to withstand beam stresses, external loads, traffic shocks and severe working pressures. *No pipe, deficient in any of these strength factors, should ever be laid in paved streets of cities, towns or villages.* Cast iron water and gas mains, laid over a century ago, are serving in the streets of more than 30 cities in North America. These attested service records prove that cast iron pipe not only assures you of effective resistance to corrosion but all of the vital strength factors of long life and economy.

in pipe for city streets

No pipe that is deficient in any of the following strength factors should ever be laid under paved streets.

CRUSHING STRENGTH

The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

BEAM STRENGTH

When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.

SHOCK STRENGTH

The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.

BURSTING STRENGTH

In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.

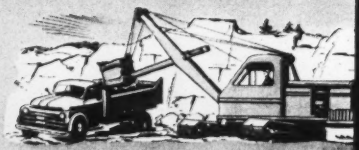
CAST IRON

CAST IRON PIPE RESEARCH ASSOCIATION, THOS. F. WOLFE, MANAGING DIRECTOR, 122 SO. MICHIGAN AVE., CHICAGO 3.

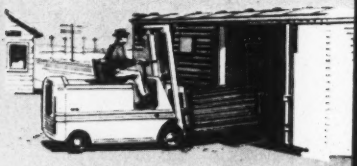
CAST IRON PIPE SERVES FOR CENTURIES

WHATEVER THE JOB...

Chrysler Industrial Engines give Better Performance at Lower Cost!



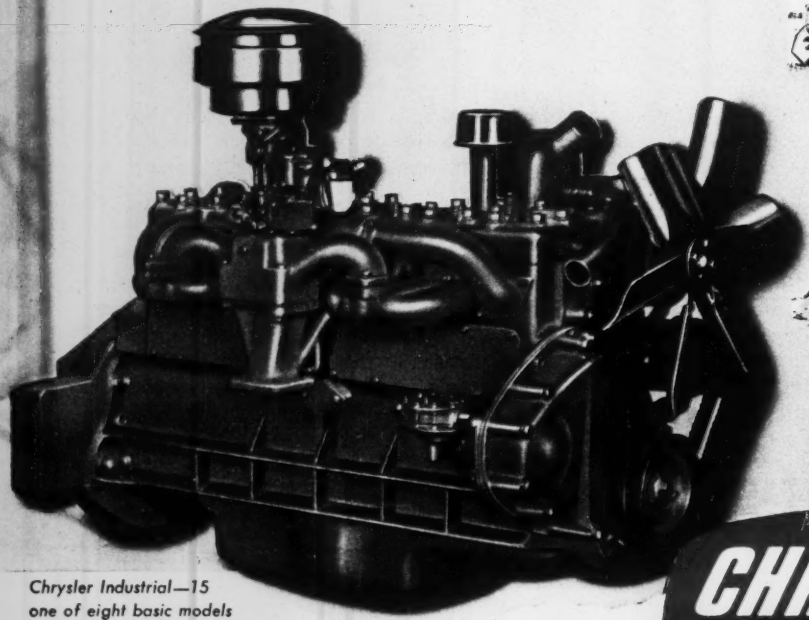
In Construction, Chrysler Powers
Ditching Machines • Cranes • Truck Mixers • Shovels • Loaders • Yarders Concrete Mixers • Road Pavers Crane Carriers • Scoop Tractors



In Industry, Chrysler Powers
Air Compressors • Hoists • Derricks Pumps • Generators • Tractors • Arc Welders • Baling Machines • Conveyors • Tackle Blocks • Winches

In Farming, Chrysler Powers
Tractors • Combines • Gang Mowers Spreaders • Irrigation Equipment Orchard Sprayers • Hay Choppers Pumps • Feed Mills • Sprinklers

In Other Fields, Chrysler Powers
Locomotives • Motor Coaches • Drilling Equipment • Air Conditioning Equipment • Pulp Machines • Fire Pumps • Street Flushers • Snow Plows • Oil Well Pumps and Drillers



Chrysler Industrial—15
one of eight basic models

Leading manufacturers and operators of industrial equipment are unanimous in their praise of Chrysler Industrial Engines.

For Chrysler Industrial Engines are designed and built specifically for rugged work. They are engineered to develop maximum power day-in, day-out with a minimum of down time and at a minimum operating cost. They are not only capable of wide application but they can also be adapted to specific regional operating conditions.

Chrysler Industrial Engines are backed by service everywhere.

A letter of inquiry will bring an engineer well qualified to discuss your application. Address: **Industrial Engine Division, The Chrysler Corporation, Detroit 31, Michigan.**

CHRYSLER

HORSEPOWER WITH A PEDIGREE

NEWS BRIEFS

Bridges up in the air—Nineteen years ago North Dakota built a steel and concrete bridge across the Little Missouri River 15 miles north of Killdeer, N. D. One end is in Dunn County; the other in the Fort Berthold Indian Reservation. But no approach roads have ever been built and it is unused except by cattle. Also at Decatur, Neb., there is a bridge with too main spans of 420 ft each which has long stood waiting for the channel of the Missouri River to be shifted so that water will flow under the bridge.

Annexation delay – City officials in Jacksonville, Fla., would like to wrap their city limits around the approximately 50,000 people living just outside the present limits but can see no advantage in it as long as Florida homesteads are tax exempt for the first $5,000 of assessed valuation (about half the real value.) The majority of small homesteads would represent an additional burden with no extra tax income. Meanwhile, the city will continue to sell electricity and water to the homes at slightly higher rates than are charged in the city, and receive a one cent tax on each pack of cigarettes the "county folk" buy inside the city.

They didn't love a parade—It cost the city of Dayton, Ohio, about $100 in overtime wages to compensate 26 city trash and garbage truck drivers for driving their vehicles in a Saturday afternoon parade to a ceremony in Library Park at which the drivers were awarded certificates of merit for their year-round service to Dayton residents. Charles Horlacher, superintendent of streets, had asked the men to donate their time, but the request was rejected. The parade was sponsored by the Dayton Chamber of Commerce.

Tenants want heat control—Tenants prefer to live in apartments where they can regulate their own heat and would even be willing to pay extra for the privilege, according to a recent study. More than 40 percent of those interviewed in about 100 cities and towns said they would pay as much as five dollars extra per month to live in apartments featuring personalized heat control. The survey was conducted by an independent organization.

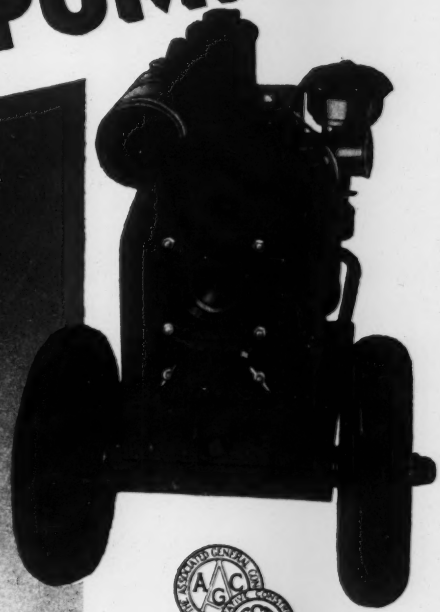
Powerful bulldozer—At Maud, Ky., recently a Southern Railway diesel engine, eight freight cars and a caboose

(Continued on next page)

for the job

• SELF PRIMING
• CENTRIFUGAL

McGOWAN PUMPS



These rugged McGOWAN all-welded steel pumps are lighter, yet stronger, more durable than any you've ever seen. They feature — automatic priming • non-clogging impeller • hardened wear plates • large access plates • tested and trouble free shaft seals.

SINCE 1852 McGOWAN PUMPS

McGOWAN LEYMAN MANUFACTURING CORP. PUMPS 58 CENTRAL AVE. CINCINNATI 2, OHIO

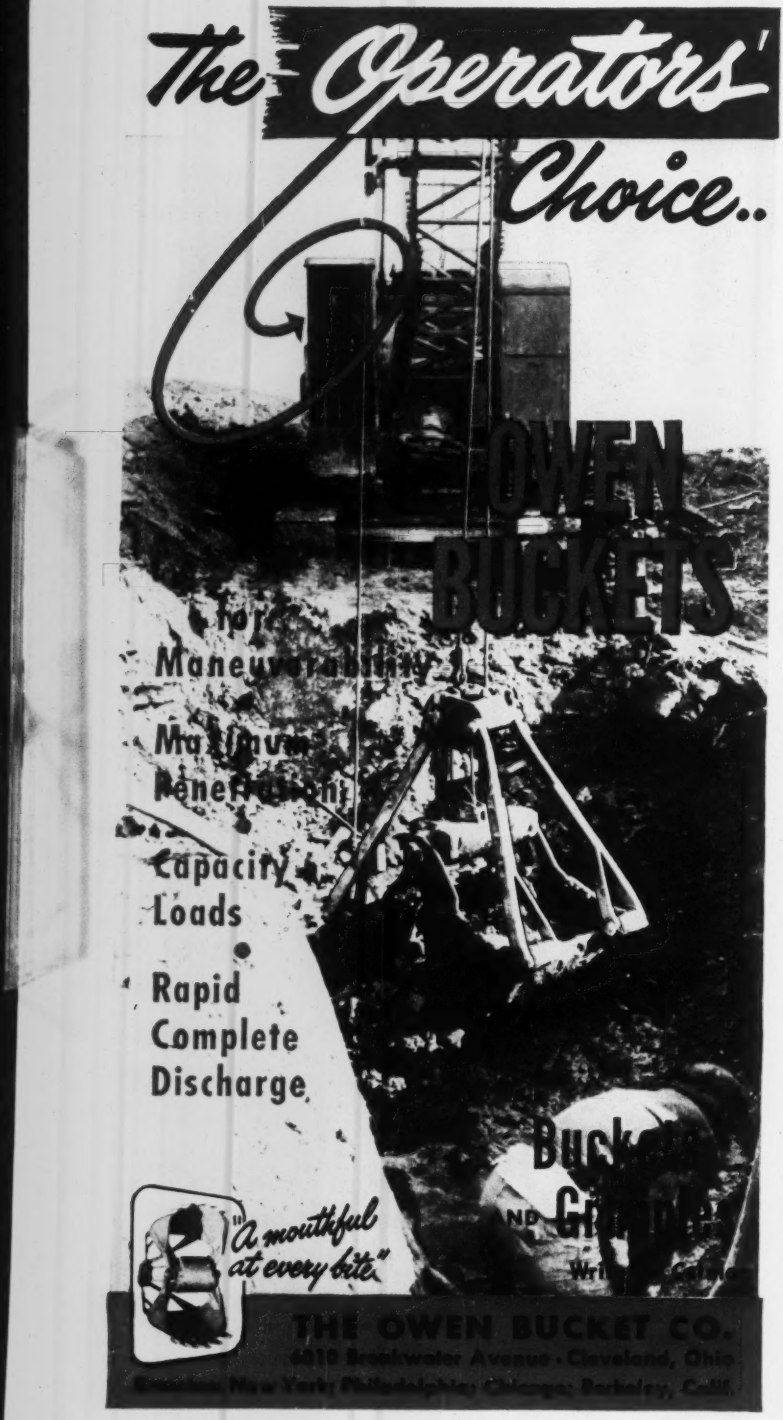
GOOD DISTRIBUTOR TERRITORIES STILL OPEN

McGOWAN PUMP DIV., Leyman Mfg. Corp.
58 Central Ave., Cincinnati 2, Ohio
Please send without obligation data on McGowan self priming centrifugal pumps.

COMPANY_____

NAME_____

ADDRESS_____



were derailed when the engine struck the blade of a bulldozer which was stalled near the track with its blade protruding about 18 in. over the railroad right-of-way.

Prefab harem—From London it is reported that an 88-room harem and a 30-room palace, complete with an electric laundry, are being shipped from England to Saudi Arabia for the Emir Abdullah, brother of King Abdul Aziz Ibn Abdul – Rahman Al-Feisal Al Saud.

Wanna buy a bridge?—The supervisors of Santa Barbara County, Calif., are offering for sale a 1,200-ft steel bridge built in 1917 at a cost of $174,992. It crosses the Santa Ynez River but has been made useless by the rerouting of a highway.

Hit and run motorboats – The side slopes of the incompleted Chain of Rocks canal on the Mississippi River near Granite City, Ill., have been damaged by the waves created by motorboats racing along that stretch of the river, Maj. E. B. Campbell Acting U. S. District Engineer, has revealed. He warns motorboat operators that sounding parties are working along the canal and have stretched lines across the water. It is possible that a motorboat might become entangled in the sounding lines. He also says that continuous wave wash may delay the finishing of the canal, now about 77 percent complete.

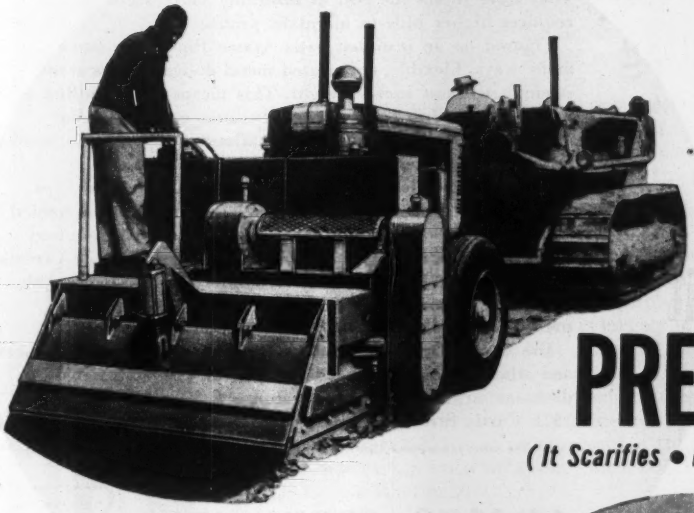
Causes of smog—After a year-long survey, the Stanford Research Institute concluded that the smog in Los Angeles County, Calif., was caused by the "incomplete combustion of nearly 50,000 tons a day of fuels and rubbish, including 2,280 tons of chemicals. Sixty percent of these materials, according to the institute's findings, come from activities of the public, including automobile and bus driving, the heating of buildings, and the burning of backyard trash.

The Cover

Laying of the 7½-in. macadam base course has begun on New Jersey's toll turnpike near Haddonfield in Camden County. Shown is the spreading and rolling of stone for the penetration macadam base, which is laid over a subbase of selected material. A 4½-in. layer of asphaltic concrete is to be laid over the penetration macadam. All paving contracts were let late last year and earthwork on 90 of the 118 miles in the turnpike now is ready for paving.

RECLAIM Old Pavements with a WOOD PREPARIZER

(It Scarifies • It Pulverizes • It Prepares)



REBUILD Them with a WOOD ROADMIXER!

(A Complete Continuous Pugmill)

Insures a thorough mix. Does not mix on the ground. Does not lose binder on the subgrade.

Hook a Wood P-600 Preparizer on a D-7 or equivalent and you can scarify and pulverize old asphalt or macadam at the rate of a mile a day on a 22' pavement. The Wood P-600 Preparizer completely reclaims and prepares old asphalt or macadam into select aggregate for low cost, 100% reuse. Even the old oil is retained. Nothing is lost. No need to import aggregates or materials. The Wood Preparizer is not a converted piece of agricultural equipment. It is a contractor's tool, designed and built to do just this kind of work — and more! Diesel-powered. One-man operated. The Wood Roadmixer, a complete traveling mixing plant available in 3 models, takes these or other prepared materials and in one pass delivers up to 350 tons per hour of ready-to-spread mix. The Wood Preparizer and the Wood Roadmixer are the finest combination of roadbuilding equipment ever developed for reclaiming and rebuilding old pavements. They will pay for themselves many times over in savings in materials, time, equipment and man-power. See your Wood distributor or mail the coupon for literature and prices on Wood Roadbuilding Equipment.

ROADBUILDING EQUIPMENT

WOOD MANUFACTURING CO.

BOX 670 • 6900 TUJUNGA AVENUE • NORTH HOLLYWOOD, CALIF.

Export Offices: 215 West Fifth St.
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Wood Mfg. Co., North Hollywood, California
Send me literature and prices on Wood Roadbuilding Equipment.

Name_____

Company_____

Street & Zone_____

City & State_____

"Low level bidding" gets the job— maintains profit

Successful drainage bids are ones that get the job and *retain adequate profit.* That's why so many experienced contractors are practicing "low level bidding" with Armco Corrugated Metal Pipe. They have found the cost of installing short, sectional pipe requires higher bids to maintain profits.

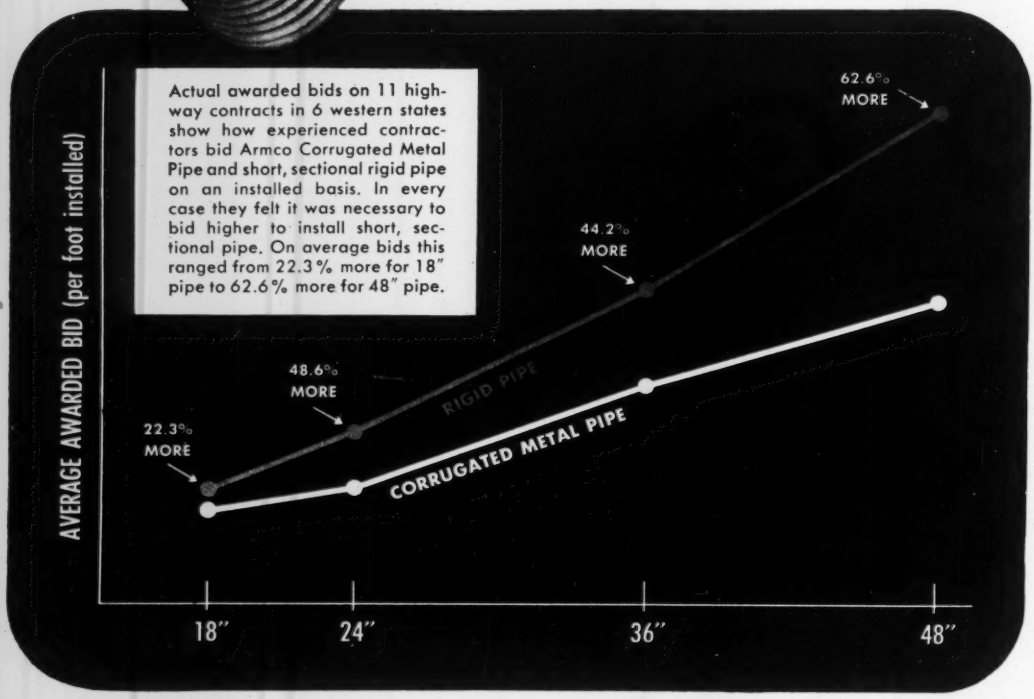
Figured on an *installed* basis Armco Pipe saves money in many ways. Flexible, corrugated metal design assures ample strength without excess weight. This means low handling and hauling costs. Job costs are low because unskilled labor quickly and easily makes the installation. There is no breakage, no curing, no waste, no delay.

Individual sections of standard Armco Corrugated Pipe and PIPE-ARCH are supplied in any length that can be hauled and handled. No large and expensive equipment is required for installation. A few men with a rope sling or a small A-frame can handle the largest structure. Connections are made with simple band couplers. Where end finishing is needed, prefabricated Armco End Sections are simple to install.

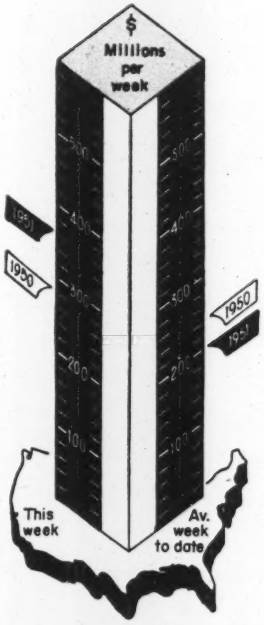
Use Armco Drainage Products on highways, railways, airports and wherever else you need economical, easy-to-install drainage structures. Armco Drainage & Metal Products, Inc., 1571 Curtis Street, Middletown, Ohio.

Export: The Armco International Corporation

ARMCO ***CORRUGATED METAL PIPE***


Actual awarded bids on 11 highway contracts in 6 western states show how experienced contractors bid Armco Corrugated Metal Pipe and short, sectional rigid pipe on an installed basis. In every case they felt it was necessary to bid higher to install short, sectional pipe. On average bids this ranged from 22.3% more for 18" pipe to 62.6% more for 48" pipe.
AVERAGE AWARDED BID (per foot installed)
62.6% MORE
44.2% MORE
48.6% MORE
22.3% MORE
RIGID PIPE
CORRUGATED METAL PIPE
18"
24"
36"
48"

THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumul 22 wks 1951	1950	% chge
Waterworks	$3.8	$95.8	$99.5	−4
Sewerage	5.5	139.3	98.5	+41
Bridges	4.9	122.9	152.1	+19
Highways	34.4	439.2	499.1	−12
Earthwork, Waterways	28.1	246.8	181.2	+36
Buildings:				
Public	32.7	965.5	712.3	+36
Housg., pub.	7.5	232.1	101.0	+130
Housg., priv.	47.1	914.3	1505.4	−39
Commercial	17.0	284.0	382.2	−26
Industrial	127.3	2128.4	497.8	+328
Unclassified	65.1	687.5	388.0	+77
Total	$373.7	$6255.8	$4617.1	+35

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr.	May '51	541.70	260.39	113.56
Building	May '51	399.87	216.16	113.67
Volume	**Apr. '51**	**509**	**207**	**147**

(Other business news on p. 59)

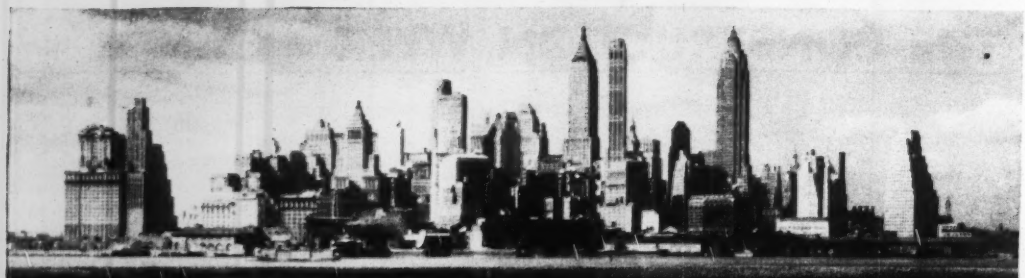
ENGINEERS FOR INDUSTRY—More trouble for industry in getting enough engineers is seen by the Engineers' Joint Council in the draft bill as passed by the House. That bill extends the top age for liability for induction from 26 to 35 for all men who seek deferment for occupational reasons. In a telegram to the Conference Committee on the bill, Carey H. Brown, head of EJC's Engineering Manpower Commission, says that putting such a penalty on a request for deferment will result in many badly needed engineers refusing to ask for deferment, thus adding to the critical shortage for industrial work.

BUSINESS HELPS CONTROLS—Observers claim there's a new kind of miracle on the Potomac—a reconciliation between government and industry over price controls. Unlike the open battles of World War II, the job today is largely in the hands of businessmen themselves. It's a fact that more and more businessmen are giving up fat salary checks to accept thin government fare, and many others are giving time and effort for free. Key is in the statement of a former corporation president: "We fought controls (during OPA days) but now we've accepted the probability that only government can stem inflation. Since policy is being made, we should have a hand in it."

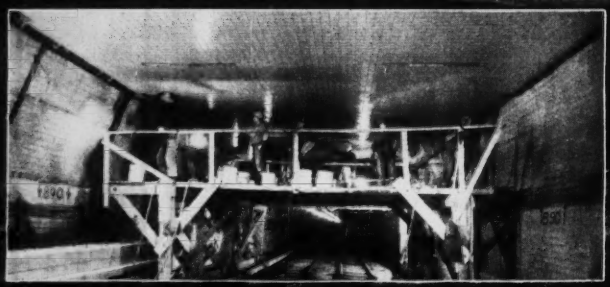
GUIDES FOR SHELTERS—How do you decide how much shelter should be provided against atomic attack? And how do you build such shelters, or modify existing structures? Federal Civil Defense Agency thinks it has some answers, and is now readying a set of technical manuals for distribution to states and communities for use in determining population needs, rating shelter areas in existing buildings, and planning communal shelters.

WHICH HOUSE (OF CONGRESS) D'YA READ?—The House-Senate up-again-down-again byplay with federally aided low rent housing is an interesting mixture of politics, attempts at economy, and personalities. Original prospects were for about 55,000 starts of such units. The House, in an economy frenzy, chopped the figure to 5,000 (ENR May 24, p 19). Last week, a Senate subcommittee boosted the figure back up again—to 50,000. The background: Mr. Truman wants to keep some public housing going, emergency or not. House economists figure the President's program would cost $500 million, politicians saw a cut in this expenditure as good political hay for themselves and an attack on the administration. To the Senate, the President appealed for restoration of the 75,000 minimum set in the original housing act of 1949. Senators offered a compromise.

UNDERGROUND STORAGE CONTROL—Exploratory drilling to locate possible underground storage space for natural gas in Burlington County had unexpected results for all of New Jersey. Spurred by protests of local residents—who feared pollution of underground water supplies by such storage—the state legislature rushed through a law requiring special permits for such underground storage of natural or artificial gas, petroleum products or their derivatives, from the state Department of Conservation and Economic Development.



13 Fathoms under the East River



Above photo shows "WATERPLUG Crew" at work, in New York City's famous Battery Tunnels, East River, New York.

Great Engineers Never Guess

Tunnel engineers and men, who work many fathoms under rivers and harbors in every large city, know exactly what WATERPLUG will do and how to use it to withstand years of wear and tear in tubes, tunnels and underground structures.

Since 1912, WATERPLUG has been an essential item on the "must list" of every construction engineer, architect and superintendent, throughout every civilized land, where large projects, in rivers and harbors, are carried to successful conclusion. WATERPLUG, powerful quick-setting hydraulic cement, is employed on large construction jobs for sealing steel-sheet piling, grouting of anchor bolts; also, to prevent possibility of vibration, such as high-powered ventilator fans, in tubes and tunnels, or other fine machinery and equipment, where slightest vibration would cause high maintenance cost.

THORITE, quick*set* mortar, for patching and filling blistered concrete, where reinforcing rods are exposed and corroded, in heavy mass structures. High reinforced-concrete buildings, cornices, sills, lintels, belt courses, grain elevators, highway bridges, railroad bridges and underpasses, dams, reservoirs, water-treating tanks, filtration plants and cracks in masonry buildings of all types.

Get our new 20-PAGE BROCHURE, with designer's guide. Pictorially described, in detail . . . "HOW TO DO IT."

Standard Dry Wall Products

NEW EAGLE, PENNSYLVANIA

CONSTRUCTION TRENDS

CURBS ON CREDIT BEGIN TO PINCH CONSTRUCTION

Credit restrictions are making it harder and harder to get money for private and public construction projects.

Credit curbs have already hurt housing activity. (ENR May 17, p. 75). First there was Regulation "X". Then the Federal Reserve Board unpegged government longterm bonds allowing a moderate rise in yields.

Now there's a new threat—"voluntary credit restriction". Mortgage and investment bankers police their own investment policies to eliminate "inflationary" loans. Already this has cut into mortgage money. Now it will cut into loans to states and municipalities.

FIRST TWO STEPS—Voluntary restriction is part of a general government attack on easy credit. Main object of the attack is to keep banks, insurance companies and other lenders from loans that will add to pressure on prices.

On March 4, the Federal Reserve Board and the Treasury decided to stop supporting the price of government bonds at par. Prices of U. S. bonds promptly fell—which made the rate of interest on them go up.

This move is working two ways to tighten the money supply:

1. Banks and other lenders (they were selling government bonds to get cash, then lending the money at higher rates of interest) are not so eager to sell their governments. Reason: they take an immediate loss on the sale. As long as they hold their U. S. bonds to speculate on higher interest rates, there will be less money for construction or other borrowers.
2. Other interest rates tend to follow the rate on government bonds, so most yields have been going up. That means it costs more to borrow money—and some borrowers are bound to be forced out,—probably veterans.

BEGINNING TO PINCH—Higher interest rates have hit mortgages especially hard. Some builders in the New York area now pay 4½%–5½% for money, compared with 4%–4½% not long ago. And they have a hard time finding lenders—although just a few months ago there was plenty of mortgage money around.

Most construction, outside of private housing, won't be badly hurt. But public construction can be hurt by the other effect of FRB action.

There are already signs that this is happening. The amount of municipal bonds in dealers' hands has been rising for several weeks. Buyers are demanding a higher return before they will take new issues of municipals.

NEW HURDLE—Now state and local authorities have been asked to pare their building programs to the bone. All projects calling for loans over $1 million must be approved by regional Credit Restraint committees. Underwriters are not supposed to bid on bond issues the Committees refuse to approve. The entire program is "voluntary"—no law forces anyone to obey.

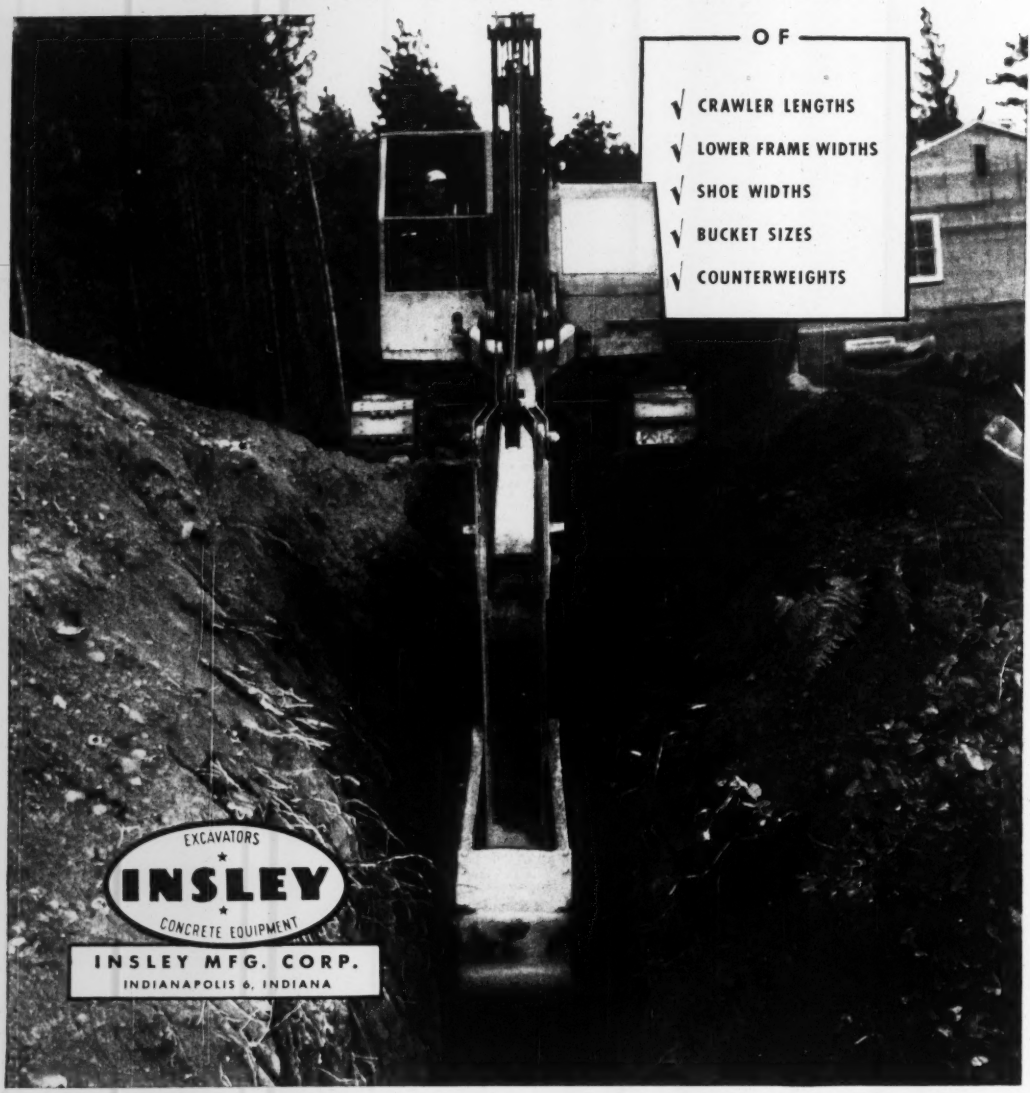
So far, the program has concentrated on obviously inflationary and "non-essential" loans like those for veterans' bonuses. Underwriters recently refused to bid on $67.5 million of West Virginia veterans' bonus bonds.

If the program went no farther than that, it would actually help the market for municipal bonds. Investment bankers feel there are too many issues on the market now. If some were kept out it would be a lot easier to sell the others.

The real battles will come over bonds to finance construction projects—and the betting is that most projects will win out.

Project Rated

BY THE USER'S CHOICE



Teachers taken for research

NEWS that the Standard Oil Company of New Jersey is planning to hire college professors that are being released because of declining student enrollment has both a bright and a dark side. For the released professors and instructors, it is fortunate that interesting research jobs are available, presumably at better pay. But from a national viewpoint—especially in the fields of engineering and science—the factors that made the release of these teachers necessary are still a cause for grave concern.

Encouragement can be found in current reports that some colleges recently have made an upward revision in their estimates of new enrollments next fall as a result of an increase in inquiries from prospective students or their parents.

And there is encouragement also in the announcement by Frank W. Adams, chairman of the oil company's board, that this employment is temporary and that his company seek men who plan to return to teaching. This, he states, will broaden the experience of the teachers and at the same time will inject new thinking into his company's research activities.

A good place to pause

IT IS DISCONCERTING to think of all the years the U. S. has carried on in the field of water-resource development without ever having had a well defined national water policy. And it is even more disturbing to consider the billions of dollars spent in depression and postwar river-development projects without a clear-cut, purposeful master plan. But, projects already finished cannot be redone; it's the future projects that need consideration. And now is the time.

Where we stand today on the road toward complete development of the country's water resources was forcefully established by Samuel B. Morris in his recent remarks before the American Water Works Association. He scaled in dollars the distance we have come and the distance still to go: $5 billion worth of water-resource works completed, $5 billion worth under construction, $20 billion worth planned and $30 billion worth in concept. It is not too late for policy formation; five-sixths of all the possible projects are still to be started. And now, as Mr. Morris pointed out, while we are at war is a good time to re-examine policies.

Unfortunately, the President's Water Resources Policy Commission, on which Mr. Morris served, had to complete it's work at break-neck speed. Similarly, the authoritative recommendations made to the President's commission under sponsorship of the Engineers' Joint Council had to be prepared rapidly to be of value to that commission in meeting the dead-line set by the President.

Still under pressure, the Presidents' commission followed its report with an outline of recommended legislation to give effect to its report. This outline went to the Budget Bureau in January where it has been kept from public view. Only last week a subcommittee of the House Committee on Interior and Insular affairs began hearings on the report of the President's commission. Budget Bureau men testified, but on the report itself, not with regard to the proposed legislation.

Why all the secrecy? This period during which most resource-development work not directly connected to the defense program has been put on the shelf would be an ideal time for deliberate study of the commission's specific proposals for legislative action, as Mr. Morris pointed out at the AWWA meeting.

Wise zoning eases parking problems

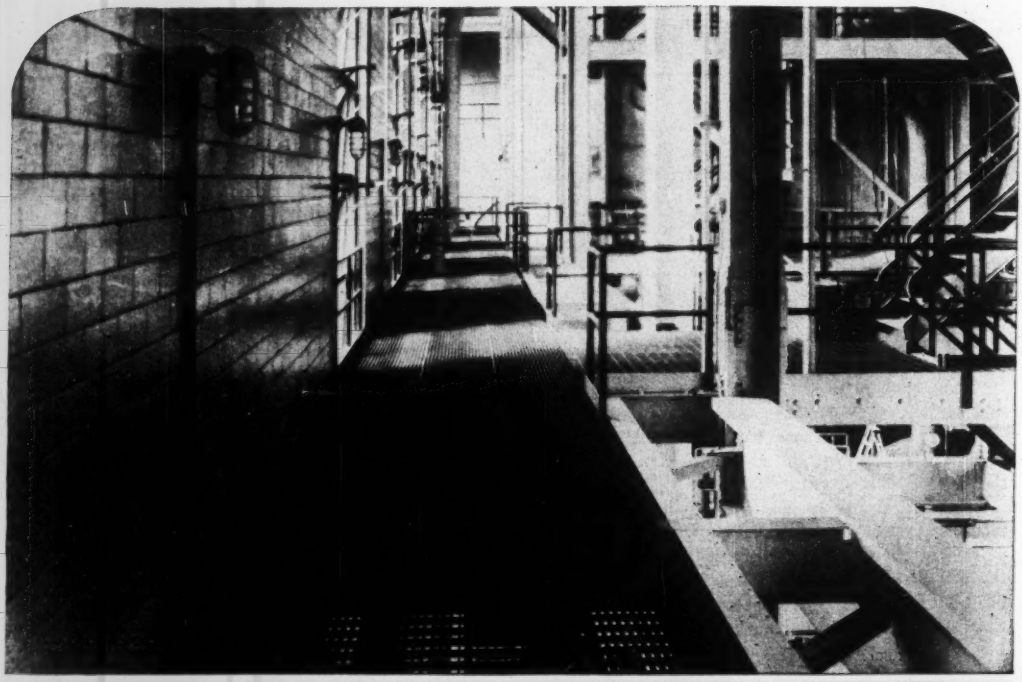
OVERNIGHT PARKING of automobiles in city streets should be eliminated as rapidly as possible. It is becoming more and more of a threat to the health and welfare of the general public. It interferes with street cleaning and snow removal, chokes traffic and inconveniences visitors. Also it fosters double parking, which not only blocks traffic but causes accidents.

Basic cause of this practice of using streets as a public garage is lack of adequate off-street parking space in residential areas, which frequently results from out-of-date zoning laws. These should be changed to encourage, rather than discourage, garage building.

In view of the shortage of off-street parking facilities in residential areas during the past decade, many cities have permitted or condoned overnight parking in the streets. Therefore, it is not uncommon to find in many residential areas that nearly all available curb space is fully occupied from dusk to dawn.

Some cities are minimizing overnight parking without imposing undue hardships on car owners by providing off-street parking facilities, after which police step up enforcement of parking laws. Where zoning laws obstruct the building of public garages in neighborhoods in which street parking is a problem, these cities have amended their laws to require garages, thus helping to ease the situation.

In these cities, zoning laws require public garages or other off-street parking areas to be provided with each new apartment-house projects, but restrict the number of parking spaces to the number of families in the projects. Due to the fact that older housing developments still lack parking areas, some thought could well be given to further amendments to the zoning law to permit builders to provide larger parking facilities. This would be an added help in clearing the streets of parked cars at night.



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ENGINEERING NEWS-RECORD

MAY 31, 1951 VOL. 146 NO. 22

Spell out details of CMP for construction industry

Controlled Materials Plan to apply to contractors, who would get allocations for their own and subs' use — Prior submission of requirements not necessary

National Production Authority officials last weekend fine-combed the second draft of CMP Regulation 6—setting up the rules to govern application of the Controlled Materials Plan to construction. Controversial details were being worked out this week, preparatory to issuing the regulation about the first of the month.

As drafted last week, the regulation would prescribe for construction projects pretty much the same pattern that has been laid down for manufacturers.

Each prime contractor who is building a project under an authorized program would get an authorized construction scheduled. He would then authorize construction schedules for his subcontractors and production schedules for his producers. They, in turn, would do the same thing for their subs and producers, on down the line.

Primary authorization would come from a claimant agency or an NPA industry division. The defense production administration has designated 19 government agencies as claimants (ENR Mar. 29, p. 80).

Along with his authorized construction schedule, the prime contractor would receive controlled-materials allotment for primary products (called A products) of steel, copper and aluminum. There are two ways in which this allotment might be made.

• **Designations**—Under the plan in draft form last week, the allotment would designate the tons or pounds per quarter of each controlled material. The prime contractor would use a portion of the allotment for his own orders and would pass along the rest to the subsidiary firms contributing to the same project.

But some NPA construction people regard specific allotments as awkward and unnecessary. They contend that figures already available give NPA a close enough estimate of quantities required for various classes of construction, such as industrial building.

Overall estimates of that kind—on structural steel, for example—are all NPA needs to initiate CMP for construction.

In their view, it is not essential that prime contractors first submit their requirements, by quarters, and then get definite quarterly allotments. Rather, these men say, it would be simpler and easier to issue blanket CMP allotment authority to the contractor, to be passed along in the same form to his subs.

Experience has shown that constructors as a whole use such authorization honestly. Later reports, required under an operation of this kind, would show up the few who might abuse the blanket allotment.

• **Requirements**—The CMP application form under discussion last week called for quarterly requirements. NPA developed the tentative form by expanding its existing Form F24, used in applying for authority to commence construction. By adding sections on quarterly requirements for controlled materials and other critical items, the agency attempted to make the new form CMP-4C serve two purposes. It could be used as an application for starting construction of a new project, for CMP authorization, or for both.

Simplicity was the objective, but some construction men doubted that a combination form would serve the desired end. They favored use of two forms, one for NPA authorization of a new project and a second form for CMP.

Whatever allotment system is adopted, the allotments to each prime contractor will carry an allotment number consisting of a claimant agency letter symbol and one digit designating the authorized construction program of that agency. Orders placed by the contractor—or his subs and producers—are to show the allotment

(Continued on page 24)

Northwest seeks quick power growth

An accelerated construction program to increase electric power for defense needs is recommended in a report by the Bonneville Power Administration. It includes expansion of Pacific Northwest power resources to provide the addition of more than 2 million kw of installed electrical capacity by 1953-1954.

This expansion, recommended by the Administration, would be a part of the 20 million kw increase for the entire nation as requested in President Truman's 1951 economic report to Congress (ENR Jan. 18, p. 25).

Because of expanded operations of existing industries and the creation of new defense plants, Northwest power requirements for the next three years will be higher than expected in May 1950, before the Korean war, P. J. Raver, Bonneville administrator, says in the report.

Even tripling of federal generation in the area would not assure sufficient power to meet both the defense demands and the region's normal load growth by 1958-59, Raver states. He reports that immediate and long-range acceleration of the production program can increase the regional peaking capacity from the present 2,268,000 to 8,378,000 kw.

• **Speed-up for these**—The program outlined in the report proposes faster construction of McNary and Chief Joseph Dams, now being built in the Columbia River, and an immediate start of construction on the Dalles Dam in the Columbia and Ice Harbor and Hells Canyon Dams in the Snake River. (See ENR Mar. 29, p. 192, for progress reports on water-use-and-control projects in the U. S.)

Other federal power projects listed as necessary to bring the area's power generation up to requirements include installation of final generators at Grand Coulee Dam, and completion of Hungry Horse, Detroit, Big Cliff, Lookout Point, Dexter, American Falls and Albeni Falls Dams.

Projects recommended for construction are listed as Libby, Rose, Chandler, Lower Scriver, Upper Scriver, Garden Valley, Palisades, Lower Monumental, Little Goose, Hills Creek, and 300,000 kw of new steam generation power plants.

(Continued on page 24)

Seek power growth

(*Continued from page 23*)

• **Private enterprise**—In the non-federal utilities field, construction already in progress or certified by the Defense Electric Power Administration, calls for installation of 1,150,000 kw of new peaking capacity by 1954-55.

These projects include: Ross and Gorge plants, city of Seattle; Cushman plant, city of Tacoma; Rock Island Dam, Chelan County (Washington) PUD; Box Canyon Dam, Pend Oreille County PUD; seven Umpqua River plants in Oregon, California-Oregon Power Co.; Bliss project, Idaho Power Co.; steam plant, Montana Power Co.; River Mill plant, Portland General Electric Co.; Cabinet Gorge, Washington Water Power Co.; and Yale project, Pacific Power & Light Co.

The report forecasts an increase in Bonneville firm power sales to industrial plants from an average of 721,000 kw in 1951-52, to an estimated 1,036,000 in 1954-55, primarily for light metals and chemicals. In the same period industrial sales on an interruptible basis are expected to increase from 175,000 kw to 513,000 kw.

Recommendations made in the advance program report were worked out by the Bonneville Power Administration in cooperation with the Bureau of Reclamation and Corps of Engineers regarding federal projects, and with private and public utilities regarding non-federal facilities.

Rules Become Tougher

The National Production Authority last week tightened its criteria for approval of new construction projects. Instructions to the staff of the Construction Controls Division in Washington and in field offices lay down this principle as the No. 1 rule: "It is essential that all construction be reduced to the minimum necessary for the defense effort."

Succeeding paragraphs tell how to carry out the principle. Bluntly paraphrased, these are the basic suggestions:

Eliminate nonessential projects; defer projects not needed immediately; modify designs to make use of noncritical materials; give more favorable consideration to projects that don't use steel, copper and aluminum; reduce mechanical and electrical features to essentials.

The new rules are going to be applied in strict fashion. Availability of materials in local areas—and in stock for proposed projects—has always been a consideration in passing on applications. The local situation in materials will continue to be a factor in NPA decisions, and the local labor supply may become a consideration in some areas.

Court asked to open steel furnaces closed by smog law

Bethlehem Pacific Steel Corp., Los Angeles, has filed a Superior Court petition against the Los Angeles County Air Pollution Control District in an effort to keep three of its open hearth furnaces operating until the end of 1951.

The steel company contends that it was unreasonable for county authorities to decree last February 14 that the open hearth furnaces must be shut down due to an alleged violation of the smog-control laws. The county's air pollution control district began proceedings on March 15 in an effort to obtain an injunction against the steel plant.

At about the same time, the pollution control board closed down operations of the Axelson Manufacturing Co., a Los Angeles gray iron foundry under the state anti-smog law (ENR Feb. 22, p. 25).

Bethlehem has asked the district's hearing board for a variance of regulations until the end of the year, when it expects to have installed a 75-ton electric furnace.

The petition asks that the court decree the close-down order unreasonable, pointing out that shutting down the open hearth furnace would decrease steel output at the Vernon plant by 6,000 tons a month. It further states that the corporation, in keeping with directives of the board, did shut down the open hearth equipment on May 1, 1950, after finding that it would be too expensive to install filters to insure that these furnaces would not create smog.

Even with the installation of the specified filters to prevent smog, results would have been uncertain, according to engineers.

Pressure of defense orders following the start of hostilities in Korea made it necessary to re-open the shut-down equipment, it is claimed.

CMP for construction

(*Continued from page 23*)

number and the quarter for which the allotment is valid.

If an allotment number is K-2, for example, and the allotment is for the fourth quarter of this year, a delivery order for controlled materials should be marked K-2-4Q51. The order must also contain a certification, "certified under CMP Regulation No. 6," properly signed.

With his authorized construction schedule and controlled materials allotment, each prime contractor and subcontractor will be assigned a DO rating. This rating may be used to acquire products other than controlled materials.

Used in conjunction with the allotment number and proper certification, previously mentioned, the rating in effect gives the buyer a super priority during the third quarter. But after Oct. 1, the rating will not get preferential treatment superior to other DO's without allotment numbers.

• **The agencies**—Claimant agencies will authorize projects—sometimes through NPA industry divisions—to receive allotments out of controlled materials allocations assigned to the agencies for their construction programs.

Among the important claimants and programs specified last week were these:

Secretary of Defense for military construction, housing on military bases, the National Advisory Committee for Aeronautics and the Coast Guard.

Secretary of the Army civil works (except power projects), the Panama Canal and Panama Railroad.

Atomic Energy Commission for its own projects.

Administrator of Federal Civil Defense Administration for federal, state and local civil defense programs.

Administrator of Federal Security Agency for schools and for hospitals other than Veterans Administration and military.

Administrator of Veterans' Affairs for VA hospitals.

Administrator of Housing and Home Finance Agency for housing, except that on AEC or military property.

Secretary of Interior or his designees for departmental programs (including Reclamation), solid fuels, electric powers, minerals and metals, and fisheries.

Petroleum Administrator for Defense—for oil and gas production, processing and distribution.

Administrator of the Defense Transportation Administration for storage and port facilities.

Secretary of Commerce for programs of the Maritime Administration, Bureau of Public Roads (all highways and streets) and the Civil Aeronautics Administration (airports and air navigation facilities).

Administrator of NPA for industrial construction, water and sewage facilities, and civilian communications.

Facilities Bureau of NPA for construction programs involving state and local community facilities such as fire and police, penal and administration buildings.

Wholesale, retail and service trades; religions, social and recreational construction; and private industrial facilities not otherwise assigned.

B. C. to spend $46 million on capital works program

British Columbia will spend $17.7 million on construction of highways, bridges and road paving this year under a capital works program expected to exceed $46 million. In addition, $9.3 million will be spent on road maintenance.

The highway building program includes $6 million to be spent on the new Trans-Canada Highway, $6.7 million on other highways, $2 million on bridges, and $3 million on paving construction.

Other major capital works include $10 million for public buildings; $1 million for hospital construction; $5 million for school construction; $4.5 million for Pacific Great Eastern Railway construction—the major portion for an extension of the line from Squamish to North Vancouver; and $8 million for the B. C. Power Commission.

One of the larger projects is Vancouver's $11.5-million high-level Granville Bridge over False Creek, which is scheduled to be completed in two years.

Contract for the center structural steel span, 1,773 ft long and 103 ft wide, has been signed with Dawson, Wade & Co., Ltd., and B. C. Bridge & Dredging Co., whose joint bid was $6,254,376.

Work on the span is due to begin June 1. British steel will be used. It will be imported in shapes and fabricated in Vancouver. Value of the steel required is put at $4.5 million.

Mackinac bridge delayed, engineering tests go on

The Mackinac Straits Bridge Authority, Lansing, Mich., in a recent report to Governor G. Mennen Williams, asked that plans for the proposed $76-million reinforced concrete and steel bridge across the straits (ENR Feb. 22, p. 44) be deferred for two years.

During the delay, brought on by a shortage of construction materials, engineering and construction problems posed by the bridge will be studied further. The state legislature has been presented with a request for $75,000 for the purpose.

Tests of the shale floor at Furnace Point near St. Ignace indicate that construction of the bridge is practical. University of Michigan findings, under unfavorable conditions—and further reduced to less favorable assumptions—are said to give assurance of a safety margin close to four times the suggested design capacity.

Fla. water table hampers septic tanks

Florida is running out of ridgeland on which to build sub-divisions near its large cities and the State Board of Health is running out of patience with troublesome septic tanks. Chief Sanitary Engineer David B. Lee has warned developers that he is "on the verge" of withholding approval of further fringe-area septic tank installations.

Before clamping down with disapprovals, however, he is fighting for legislation authorizing sanitary districts to be set up upon vote of residents.

"It is estimated that over 70% of the population of Florida lives in areas where the elevation is not over 25 ft above sea level. The water table is near the surface of the ground at all times of the year and will rise to the surface during rains," says Lee.

Also, land which barely passes standard percolation tests prior to development may become unsatisfactory after installation of septic tanks on each of many small lots. One approved subdivision of 120 homes was a case in point. After one year, all but three septic tanks caused trouble.

• **Remedy**—The Board of Health for two years has been recommending small private sewage collection and treatment systems. Plants have been installed from sizes that would serve a night club to plants for subdivisions housing 1,000 to 2,000 persons.

The majority of the plants now being installed consist of septic tanks followed by intermittent sand filters. The septic tank serves to remove settleable solids; the sand filters provide secondary treatment.

• **Experience**—During the past year, the State Board of Health has made various studies of sand filters in Duval County and Jacksonville. Results indicate an average BOD reduction of 90% and as high as 96%. The reduction in coliform densities has been averaging approximately 80% and, with few exceptions, the effluent is satisfactory for discharge without chlorination.

A coarse sand having an effective size of about .4 mm is generally used. The filter effluent is discharged to roadside ditches which may at times be dry, or to drainage ditches in which there is some dilution.

Cost of these treatment works, together with the sewage collection system, has been in the order of 100 to 150% more than the cost of conventional individual septic tank installations.

BRIDGING THE GAP—As joining of the two center-span parts of the Delaware River Memorial Bridge, south of Wilmington, Del., was made recently, bond-issue legislation was passed by the Delaware Legislature to provide an additional $3,900,000 to complete the structure (ENR April 5, p. 25). Target date for completion has been postponed from July 1 to August 1. (Acme photo)

D. C. to get $11.7-million Anacostia River bridge

Plans have been approved for another highway bridge to link Washington, D. C., with the area east of the Anacostia River. Final approval has been given by the National Capital Park and Planning Commission to the design for a $11.7-million structure on East Capitol Street, which will connect downtown Washington with the Baltimore Parkway now under construction.

If construction proceeds on schedule, the new crossing will be the second bridge built across the Anacostia in less than five years. The $5.4-million South Capitol Street Bridge was opened to traffic early last year.

The bridge itself, a quarter-mile span costing an estimated $2.7 million, is relatively a minor part of the project. Work on the east approaches will be the most expensive. Here the four-lane roadway will go underground for about 3,400 ft to underpass railroad tracks and make connections with arteries leading to the Washington-Baltimore Parkway. This work is estimated to cost $6.7 million.

Approaches on the west side are expected to cost $2.3 million.

According to plans prepared by the J. E. Greiner Co., Baltimore, it will be a deck-plate, steel girder type and will not have a draw span.

Construction is scheduled to begin early in 1952 and to be completed in two years. Because of the importance of the connection to the new Baltimore highway, District officials hope to get National Production Authority approval for construction.

Roads long on traffic, short on funds

Large increases in motor vehicle registrations during 1950 have served to bring an additional burden to the already overtaxed highway system of the U. S., according to figures gathered by the U. S. Bureau of Public Roads.

Vehicles using the highways increased by 4½ million last year. Total registrations climbed from 44.6 million in 1949 to 49.1 million in 1950. Seven states (Calif., N. Y., Pa., Tex., Ohio, Ill. and Mich.) registered more than two million each.

• **Money Plans**—Interest in a new highway program for California has been revived in the state legislature through the amending of a road bill by State Senator Randolph Collier which would provide a $1-million bond issue for major highways and freeways carefully selected and considered of strategic importance. (ENR Mar. 8, p. 30). The system covers all the major north-south and east-west routes and the most needed metropolitan freeways.

Expenditure of the bond receipts would be spread out over a period of 10 years and, in answer to queries concerning timing of the program because of the mobilization effort, Senator Collier states that the work will not start until 1953 at the earliest.

He emphasizes that funds can in the meantime be concentrated on acquisition of rights-of-way—which become more expensive as time goes on. Use of the bond money would release more funds for other highway work in the state.

Originally, the bill proposed an increase in gasoline tax to finance the plan. The amendment advocates a 3% retail sales tax on gasoline, a ½¢ vehicle license fee and taxes on diesel fuel used by trucks and buses.

Earl C. Rogge, state highway commission chairman for Arizona, warns in a report that for the first time in history his state's roads are being worn out faster than they can be rebuilt with available funds.

He states that syphoning of highway funds for other purposes is costing Arizona $1 million annually and that the practice should be stopped. He also recommends that new sources of revenue be tapped: possibly an increase in the four-cents-per-gal gasoline tax.

Rogge warns the state that the PRA is justified in withholding federal aid if increasing diversion and dispersion of funds should continue.

In Maine, the State Supreme Court, in an advisory opinion, declared unconstitutional proposed legislation that would divert part of the state's gasoline tax revenues to the Maine Turnpike Authority for extension of the toll road.

• **Stretching the dollar**—Virginia has shelved long-range designs for its highways "for the duration" and is concentrating on making its roads do for the next 10 years. The program involves about 2500 miles of the Old Dominion's principal highways.

A minute study is in progress of roads, bridges, culverts and approaches to determine stop-gap improvements needed to keep them serviceable. A program of priorities and schedules will be set up—to make it easier to obtain federal assistance on steel and other essential materials.

In Maryland, the newly-appointed state roads commission announced its intention to stretch the highway dollar by lowering road design standards in keeping with safety and traffic volume. In one major project, the commission modified plans from a superhighway to a two-way, single-strip highway.

Plans for 1951 call for an expenditure of about $30 million for construction of 60 miles of new road and to widen and resurface 130 miles of existing highways.

• **Expressways**—Large cities across the country are faced with an ever-increasing pressure of traffic. Expressways over and around busy thoroughfares are being pushed as fast as funds and rights-of-way can be accumulated.

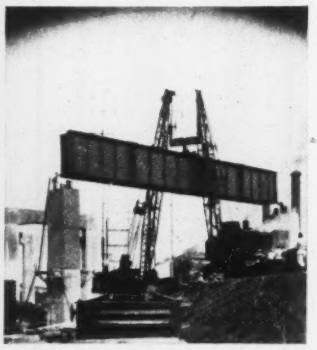
In Chicago, the Congress Street Expressway (ENR July 28, 1949, p. 55) now extends from Canal Street west to Sacramento Boulevard. Land and buildings bought for the right of way so far have cost $31 million.

In Richmond, the pros and cons are flying in animated discussion over the City Planning Commission's recommendations for a five-year construction program costing $330,000 annually in city funds, in connection with a proposed expressway to extend across the middle section of the Virginia capital (ENR April 27, 1950, p. 56).

Total cost of the project by 1956 is expected to be $6.6 million. The city is to get three dollars in state and federal money for every dollar it puts up for the job. The city council has yet to take formal action.

Mayor Charles Farnsley of Louisville, Ky., last week ordered ordinances drafted to appropriate $500,000 toward the city's share of the cost of rights-of-way for north-south and an eastern expressways which would become part of a planned $55-million system of super roads.

State and federal governments will be asked to pay all the construction costs and share right-of-way costs with the city.



STEEL BOX-GIRDER CAPS CONCRETE PIER—A south pier on the New Jersey Turnpike's Passaic River crossing has to span Pennsylvania Railroad freight lines. A 95-ft-long, 100-ton steel box-girder was chosen for stability, strength and appearance to support longitudinal main girders over the tracks. Bridge's 375-ft main span shares with that of Hackensack R. crossing, being erected just beyond, U. S. record for length of continuous girder span. Bethlehem Steel Co. has Passaic superstructure contract; Amman & Whitney did design and supervises construction.

N. C. raises load limits on state's secondary roads

Complaints by lumber men, pulpwood truckers, mining companies and others interested in heavy highway hauling in North Carolina moved the state's highway commission last week to approve higher load limits on secondary roads.

North Carolina is paving systematically many of its secondary highways under a $200-million rural road bond program. Truckers point out that prior to paving they could carry unlimited loads; since paving, profitable loads could not be carried.

Under the new plan, maximum axle weight is fixed at 13,000 lbs. Vehicles with two axles are permitted up to 20,000 lbs and the limit for three or more axles is 30,000 lbs on most roads. Previously, the limits were 16,000 lbs for two axles and 24,000 lbs for three or more axles.

For its primary highways, North Carolina sets the following limits: 13,000 lbs per axle; 30,000 lbs for two axles; 44,000 lbs for three axles; and 56,000 lbs for four or more axles.

Chief Highway Engineer W. H. Rogers, Jr., recommended the new limits and has been instructed by the State Legislature to keep a close watch on the results. If individual roads show signs of damage.

Canadian engineers study St. Lawrence

Ontario's great need for the power that could be developed in the international section of the St. Lawrence River came up for active discussion at the 65th annual meeting of the Engineering Institute of Canada, held in Montreal May 9-11.

In a discussion of the new steam generating station being built by the Hydro-Electric Power Commission of Ontario, Richard L. Hearn, general manager and chief engineer of the commission, told a large audience how desperate is the need of Ontario for more power. He also stated that a decision must be reached in the very near future in regard to the development of power from the international section of the St. Lawrence.

Comment on Mr. Hearn's paper led to a discussion of private versus public generation of water power, a subject now rarely heard discussed in Canada, where public power generation is accepted in all but three provinces.

• **St. Lawrence again**—The St. Lawrence waterway was the subject of an unusual paper by J. G. G. Kerry, 84-year-old consulting engineer of Port Hope, Ontario, who has been studying various aspects of the St. Lawrence River throughout a professional lifetime which almost spans the history of the institute itself.

Reminding his listeners of all the difficulties which had to be faced when the Montreal Harbor Commission first tackled the problem of a deep channel from Quebec to Montreal, Kerry said that he could see no reason why Canada could not undertake construction of the waterway and power development in the international section by itself, if forced to do so by further delay in American agreement.

• **Defense measures**—At sessions devoted to Canada's part in the United Nations defense program, G. B. Howard, general manager of the Canadian Industrial Preparedness Association, discussed various aspects of the gearing of Canada's industry for defense needs. From another angle, N. M. Brydon of Glasgow, Scotland, described how vital services may be maintained during enemy action, based on British experience during the last war.

Ira P. Macnab, general manager of the Halifax Public Utilities Commission, Nova Scotia, was inducted as new president of the institute, succeeding J. A. Vance of Woodstock, Ontario. J. W. Sanger, Winnipeg, C. G. R. Armstrong, Windsor, Ont., and J. B. Stirling of Montreal were elected as new vice-presidents.

Meanwhile, at Niagara Falls, Ont., work is progressing at Canada's $157-million Sir Adam Beck Hydroelectric Generating Station No. 2—which will be built on a shelf being carved out of banks along the lower Niagara Gorge.

The plan is to take water from the Niagara River above the falls, carry it by tunnel under the city of Niagara Falls, Ont., and thence by open sluiceway to the new hydro plant.

Under public ownership, the plant's output of 102,000 electric hp will go far in alleviating Ontario's power shortage.

Willamette Basin to add hydroelectric facilities

Modification of plans for construction of two dams in the Willamette Basin flood control project in western Oregon, to add power producing facilities, has been introduced in Congress by Senator Guy Cordon of Oregon (ENR Apr. 27, 1950, p. 29). The two projects, Cougar Reservoir on the south fork of the McKenzie River, and Green Peter, on the middle fork of the Santian, both have been authorized by Congress.

The proposal calls for installed capacity of 25,000 kw at Cougar and 81,000 kw at Green Peter.

In conjunction with the Green Peter project, it is proposed to build a re-regulating dam at White Bridge with installed capacity of 10,000 kw.

Sewer stoppers pop, flood closes Detroit expressway

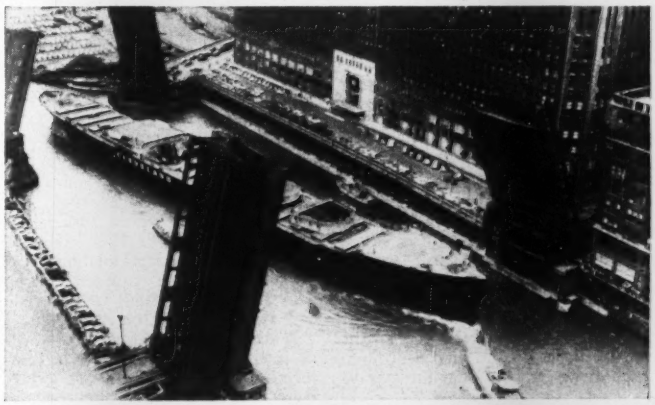
One of Detroit's most heavily traveled thoroughfares, the depressed cross-town Davison Expressway, was flooded and heavily damaged in a torrential downpour Sunday evening, May 20. The roadway has been closed to traffic, pending investigation into the extent of damage. The Wayne County Road Commission estimates that repair work will keep the route closed for a week.

A half-inch of rain fell within 30 minutes during the storm, bursting plugged-up sewer ends to send spouts of water shooting across the expressway. The flood appeared so rapidly that about 30 cars were marooned by water. Trapped occupants waded out and climbed muddy embankments, large portions of which collapsed and washed down onto the roadway.

Cause of the flood is said by engineers to have been the great pressure of surplus water on old sewers which were closed when the expressway was excavated. These sewer ends, now located above road pavement level, had been plugged with concrete.

As torrents washed away embankment earth supporting the sewer ends, the concrete cracked, then blew out. One stream of water shot completely across the 100-ft width of road.

Road crews began emergency repair work while the storm was at its height. A sewer under the expressway, threatening to collapse, was shored up after two hours of frantic improvising.

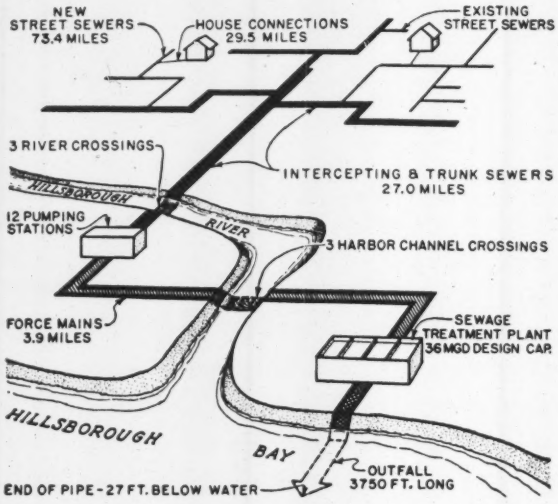


LAST LAP—Long trip from Baltimore to Great Lakes ended at Chicago for the Cliffs Victory, converted victory ship that will be the lakes' fastest (18 mph) iron ore carrier. Conversion included inserting a 165-ft mid-section to yield 620-ft length. Toughest part of route via New Orleans was the Illinois Waterway, where many close clearances had to be anticipated. To duck under bridges and pass over lock sills, the ship's draft was varied from 8 to 17 ft—with aid of exterior auxiliary ballast tanks. Shown alongside the Merchandise Mart in Chicago River ship heads for successful passage of its last tight spot, the Lake Michigan lock at the river's mouth. Bethlehem Steel Co. delivered the hull to Cleveland Cliffs Iron Co., the owner, in Chicago. (Acme photo)

FISCAL QUANTITIES

STREET SEWERS	$2,063,669
INTERCEPTING SEWERS & FORCE MAINS	3,680,452
RIVER CROSSINGS	332,853
OUTFALL	384,650
PUMPING STATIONS	642,128
SEWAGE TREATMENT PLANT	1,660,649
SEWER REHABILITATION, CLEANUP & ADDITIONAL SEWERS	535,599
CONSTRUCTION COST	$9,300,000
LAND	$175,000
CONTINGENCIES	540,000
ENGINEERING	825,000
LEGAL ADMINISTRATION & FINANCIAL	155,000
INTEREST DURING CONSTRUCTION	775,000
BOND RESERVE	230,000
MISCELLANEOUS COSTS	$2,700,000
CONSTRUCTION COST	$9,300,000
MISCELLANEOUS COSTS	2,700,000
TOTAL COSTS	$12,000,000

PHYSICAL QUANTITIES


NEW STREET SEWERS 73.4 MILES
HOUSE CONNECTIONS 29.5 MILES
EXISTING STREET SEWERS
3 RIVER CROSSINGS
INTERCEPTING & TRUNK SEWERS 27.0 MILES
HILLSBOROUGH RIVER
12 PUMPING STATIONS
3 HARBOR CHANNEL CROSSINGS
FORCE MAINS 3.9 MILES
SEWAGE TREATMENT PLANT 36 MGD DESIGN CAP.
HILLSBOROUGH BAY
OUTFALL 3750 FT. LONG
END OF PIPE - 27 FT. BELOW WATER

Tampa solves a paradox:

How to dig up $12 million for sewers . . . . .

Donald Newton
Resident Engineer,
Greeley and Hansen, Chicago, Ill.

FUNDS for Tampa's comprehensive sewage disposal system come from sale of bonds to be redeemed by sewer service charges.

In constructing its new sewerage, the Florida city of 124,000 persons has envisioned rapid growth of suburban districts to bring the area's population to 335,000 by the year 2000.

The basic service charge to pay for treatment and disposal of sewage will be 100% of the water bill (minimum: $1.50 for 700 cu ft per month). Special charges or credits will be made to users who contribute more or less heavily than the average to sewage flow or strength.

A feature of the financing favors users who already have been assessed for existing facilities. A surcharge will be applied to all new users who connect to new lateral or street sewers. Thus, the new users will pay for the new lines, as well as share the cost of treatment facilities. The surcharge represents a contribution by the user of about one-third the cost of constructing his service sewer past his street frontage. It amounts to an additional 35% of the water bill, or a minimum of $1.00 per month, for a total of 240 monthly payments.

• **Bond sales**—A $13,000,000 revenue bond issue was validated in the summer of 1949. First sale of $8,000,000 worth of serial and term bonds was completed in November, 1949, the bonds being sold at an average interest rate of 3.24%. Two groups of construction contracts—totaling 63% of the work—were awarded, to be paid for with proceeds of this sale and are under way or completed.

A second sale of $4,000,000 worth of serial and term bonds was completed in September, 1950, bonds being sold at an average interest rate of 2.74%. A third group of contracts totaling 26% was awarded with proceeds from this sale.

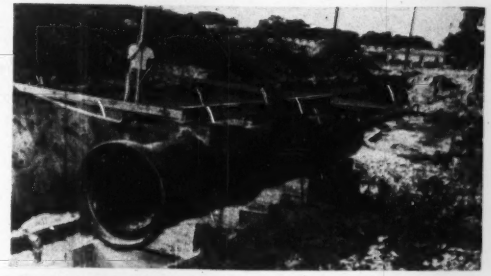
Some 7% of the work remains to be awarded. Completion of the project at a total cost of $12,000,000 is estimated. Substantial completion is expected in the fall of 1951.

The saving represented by the $1,000,000 reduction in the bond requirements has been the result of the greater stability of construction costs during 1949 and early 1950 and an obvious increase in the eagerness of contractors to obtain construction work.

The last major group of bids, received last July, came before the full impact of the Korean crisis was felt. As a result, the project cost has largely escaped the appreciable price increases that have occurred in recent months.

The system of sewerage lies along the shores of Hillsborough Bay—a long, land-locked arm of the Gulf of Mexico—and the Hillsborough River. The project includes: A sewage treatment plant to give 36 mgd primary treatment, a subaqueous outfall sewer, an intercepting sewer system including pumping stations, force mains and crossings beneath the river and harbor channels, and extensions of the lateral sewer system.

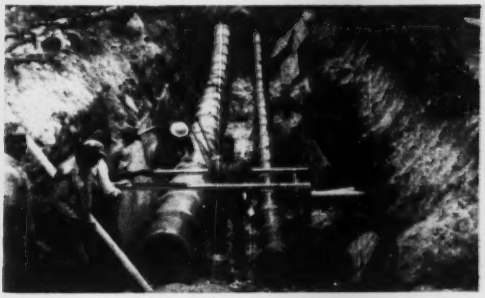
Financial and legal advisers to Tampa in issue, sale and redemption of bonds are respectively Lehman Bros. and Mitchell and Pershing, both of New York.



PREJOINED PIPE SECTIONS are lifted by slings attached to strongback having angle-iron cross members. The three-pipe . . .

ASSEMBLY IS LOWERED into place by the rigid sling. One joint—instead of three—remains to be poured in the trench.

CRUSHED ROCK BASE on unstable trench bottoms has a minimum 6-in. thickness—often goes to greater thicknesses.



WORST WATER PROBLEMS—like where this twin siphon was laid under the bed of a small stream—needed wellpoints.

. . . and how then to bury it in the ground

ONE CONTRACTOR on construction of Tampa's comprehensive new sewerage system has found a time saving in joining lengths of 18-in. vitrified clay pipe before lowering them into place with a rigid sling. By assembling three 4-ft sections in a horizontal timber cradle on the bank and pouring two joints there, he is able to lay 12 ft of pipe with only one joint to place in the trench (see photos).

Unstable soils, groundwater at 5 to 6 ft, trench depths to 21 ft and underpassing of railroad tracks at 52 separate locations have made necessary other noteworthy features.

Soils range widely from extremely fine, flowing sand to hard blue clay and limestone in varying stages of hardness and decomposition. Trench bottoms are stabilized where necessary with a layer of well-tamped crushed limestone, generally 6 in. thick but often varying up to several feet. It has been found to date that if enough crushed rock is used, the worst trench bottom can be stabilized.

Groundwater—normally close to the surface—and even closer in the rainy season when most of the city's 50 in. of rain falls—in most cases is handled by wellpoints or pumps. Fortunately the need for sheeting trenches has been relatively infrequent—despite fine soils and high moisture content. Pipe laying is not permitted unless the trench bottom is dry. Pipe joints of either cement mortar or bituminous compound having a coal tar base are acceptable; most of the clay pipe is being installed with bituminous joint material (CPI-2).

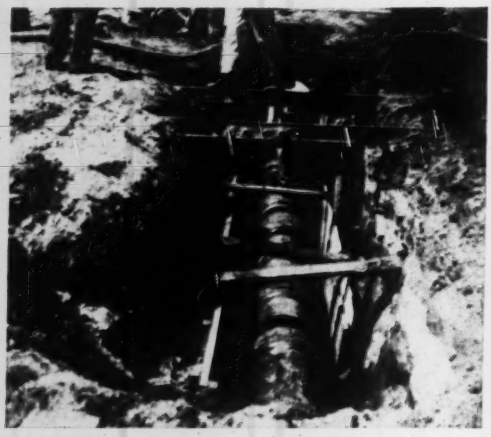
Vitrified clay pipe is used for all gravity sewers up to and including 24-in. dia. Larger pipe—up to 84-in. —is reinforced concrete in 8 and 16-ft lengths in addition to the usual 4-ft sections; cast iron is used on some subaqueous lines and in smaller force mains.

Where depth of cut or other conditions require, sewers are laid in concrete cradles or are completely encased in concrete. Cradles or complete envelopes are poured against undisturbed earth, against sheeting, or in timber forms if conditions prevent excavation of a narrow trench (see first photo on next page).

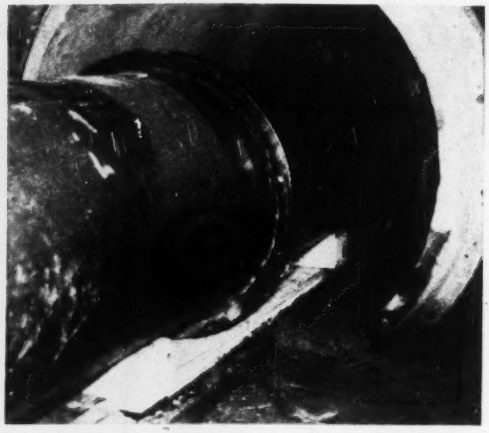
• Rail yard is problem—A railroad yard, spurs and mainline tracks have complicated pipe laying somewhat in the city's southeast section. Clay pipe must be laid inside concrete encasement on all railroad underpasses. Removal of rails and ties (or ties only) and open trenching is practiced where service can be discontinued during construction. Where traffic can't be interrupted, the concrete encasement pipes have been placed by jacking, tunneling by liner-plate method and open cut temporarily bridged with timber beams on mud sills.

In one jacking operation, 36-in. tongue and groove reinforced concrete culvert pipe was being pushed 56 ft through an embankment when a long abandoned storm sewer was encountered at about its midpoint. A section of the unused line had to be removed, and bulkheads were placed.

When the jacking was done, a concrete mat was placed inside the encasement to exact grade, and the 15-in. vitrified clay pipe was pushed through on a timber cradle—pipe sections and cradle lengths being added as it went. After installation of the pipe, additional concrete was pumped



UNDER RAILROAD TRACKS that could be put out of service temporarily, excavation was open cut. Note forms for concrete envelope around 15-in. pipe.



ON THE SKIDS—Under in-service tracks, a concrete encasement pipe is jacked first. Its invert is concreted to proper slope, then sewer pipe is pushed through.

JOINT MAKING IN TRENCH—Note the tee for 6-in. riser from this 21-in. line. Tee later will be encased in protective concrete. Concrete cradles were used where conditions warranted.

COMPLETED BITUMINOUS JOINT, after runner has been removed, is neat and—most important—watertight. All lines must pass infiltration test.

into the encasement to form a supporting cradle under the pipe's bottom quarter; then the annular space above the cradle was filled with hydraulically placed sand.

• **Stream crossings**—Stream crossings were accomplished in two ways: A dual siphon of 10 and 24-in. pipe to pass under a small creek is illustrated, ready for concrete encasement. In another case, 130 ft of 21-in. dia clay pipe inside a 2-ft 10-in. square reinforced concrete section will bridge a gulley on rectangular concrete columns; future development will place this entire structure in a roadway fill, so it has been designed accordingly.

In downtown Tampa, where an old sewer is being replaced, the contractor is favored by happenstance. The old and new lines flow in opposite directions.

Starting to install the new sewer at the upstream end of the old, the contractor needs only to disconnect one block of old-sewer service at a time. Connection is made to the new sewer as soon as it is completed, and it is put in service (flowing, say, north) while old sewer service still goes on in the next block (flowing south).

Sewer construction, which began in December, 1949, has been broken down into some three dozen divisions and will have been worked on by ten different contractors before completion next fall.

Pumping stations and the treatment plant are being constructed under prime contracts with Lewis & McDowell, New York, C. T. Dawkins, Tampa, and Paul Smith Construction Co., Tampa.

Designers of the system, Greeley and Hansen, Chicago, are also supervising construction. J. T. Walbridge is their construction engineer, and the author their resident engineer. R. K. Van Camp is superintendent of Tampa's Department of Public Works; Assistant Superintendent B. M. Duncan is in direct charge of the project.

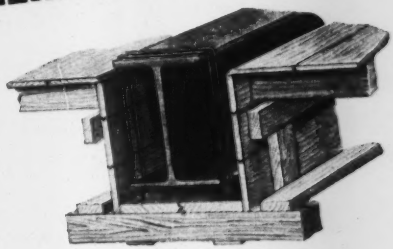
ENGINEERED TYING DEVICES, ANCHORAGES and ACCESSORIES for CONCRETE CONSTRUCTION

RICHMOND TYHANGERS WITH TYSCRU PRINCIPLE LICK A TOUGH PROBLEM IN JIG TIME

TH—Tyhanger

LAG—Tylag

FW—Flat Washer



The problem of safely supporting forms for decks, slabs and beam and girder fireproofing with concrete is greatly simplified by the use of Richmond Tyscru-Type Tyhangers. Coils may be flush with the soffit, against a cut washer for a ⅛" setback, or figured to end at any specified distance from the face.

SURE SLICK HOW FAST THOSE FORMS GO UP WITH TYHANGERS.
YUP—AND THE OLD MAN SAYS THEY SAVE HIM REAL DOUGH.
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INSIST ON RICHMOND
. . . AND BE SURE IT'S RICHMOND!
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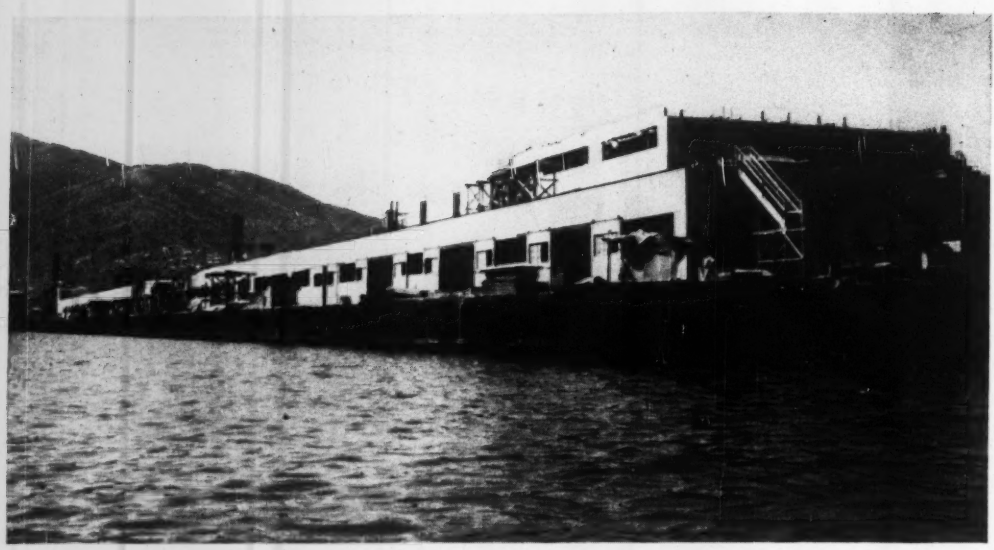
RICHMOND KNOW-HOW—DEPENDABILITY—SERVICE—ESTIMATES & JOB PLANNING



CONCRETE PIER AND TERMINAL BUILDING will be equipped to speed up shipping in the Port of La Guaira, Venezuela. The building, mostly two stories high, was cast in wood forms designed to be re-used several times.

Ship terminal for fast cargo handling

Alonzo de F. Quinn
Chief Engineer
Frederick Snare Corp
New York, N. Y.

As part of an expansion of the Port of La Guaira, Venezuela, a ship terminal is being constructed that will enable cargo to be handled and stored speedily and efficiently. Also, this structure will be noteworthy for the facilities it contains for the convenience and pleasure of ocean travelers.

Of rigid-frame, reinforced concrete construction, the passenger-terminal and warehouse building is being erected on top of a reinforced concrete pier 164 ft wide by 1,135 ft long. Gantries and movable platforms at second-floor level on each side of the building will speed movement of cargo and passengers to and from ships.

• **Port greatly expanded**—Enlargement of the Port of La Guaira which is the port for Caracas, capital of Venezuela, was started three years ago and is now nearly completed. The port previously consisted of a small breakwater pier and a cargo pier and warehouse that had been built in 1945. That these shipping facilities were inadequate to handle Venezuela's continually increasing trade was evidenced by the necessity of having as many as 20 ships anchor outside the harbor, waiting for a chance to dock.

When the present construction program is finished, the port will have a harbor fully protected by two breakwaters projecting out more than 2,000 ft from shore into 40 ft of water. A newly built concrete wharf will extend along the shore for 3,030 ft, enabling six large freighters to be berthed at one time.

At the westerly end of the wharf will be the concrete pier and terminal building previously mentioned.

Other port facilities that have been completed in this program include a 680-ft oil unloading pier and a boat basin with 1,100 ft of sheet-pile bulkhead for docking small ships used in coastal trade.

The harbor has been dredged to a minimum depth of 34½ ft below mean sea level. The spoil, together with waste from a quarry developed for construction of the breakwaters, has been used to create more than 20 acres of new land in back of the wharf, pier and bulkheads. On this fill, an administration building, warehouses, roads and railroad sidings will be built.

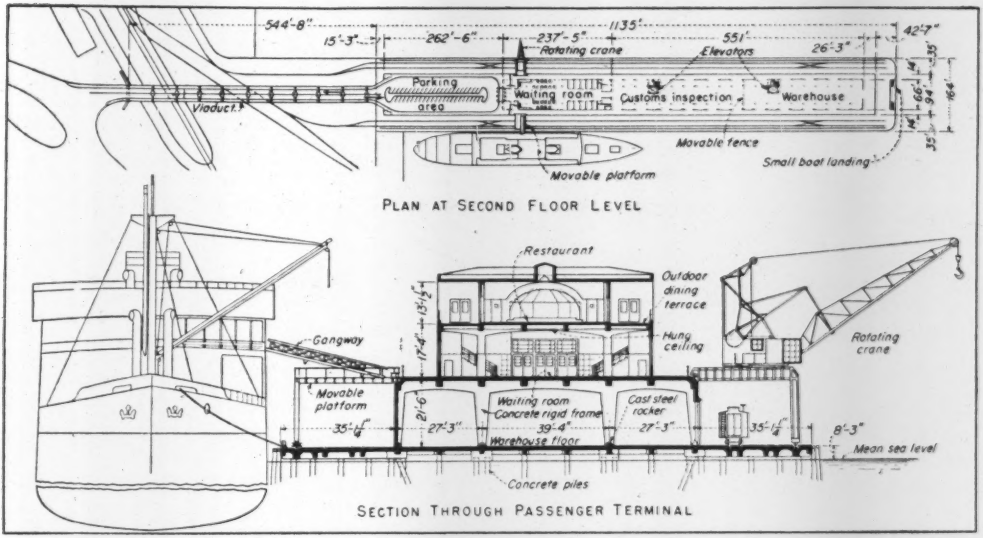
A viaduct from an express highway now under construction, which will connect the port with Caracas, will provide direct access to the embarkation floor of the passenger terminal. Thus traffic will not have to cross the railroad tracks and other roads at grade.

• **Pile foundations**—The pier and terminal building are supported on 2,210 concrete piles. The piles are 18 in. square and vary in length from 50 to 65 ft. Transported to the driving rigs on a narrow-gage railway along the center of the pier, they were driven to a safe bearing capacity of 66 tons.

Pile driving was handled by two revolving cranes operating side by side, each working on half the width of the pier. As the piles in each bent were driven, they were tied together with a pair of horizontal 8x16-in. timbers. Piles directly in front of the cranes were cut off to the desired elevation and capped with steel frames to support longitudinal steel girders and rails. The cranes rode these rails as driving progressed away from the shore.

• **Rigid-frame construction**—The passenger terminal building is mostly two stories high, but a third story, housing a restaurant and cocktail lounge, tops part of it. At main-deck level is a warehouse. On the second floor are a waiting room, customs inspection, parking area and additional warehouse space.

Reinforced concrete beams 13 ft



FACILITIES for passengers are incorporated on the second and third floors of the building. First floor is devoted almost exclusively to storing and handling of cargo. Gantry cranes and movable platforms facilitate loading and unloading of ships.

apart support the second and third floors. The beams span 26 ft between reinforced concrete rigid frames.

First-story columns are hinged at the base, so as not to cause bending in the pier deck. This construction made it possible for the contractor to build the pier without having to wait for completion of the warehouse design, which involved lengthy computations. An approximation of the vertical and horizontal reactions at main-deck level was sufficient for determination of the number of piles needed and for design of column footings.

The base of each first-story column is supported on a cast steel rocker. The lower half of the casting is bolted to the pier and the upper half is doweled into the column. Rocker bearing surfaces were carefully machined to a tolerance of 0.004 in. Upper and lower surfaces are separated by a ⅛-in. lead sheet to prevent freezing and binding when the column deflects.

Second and third-story columns are doweled into the frames below, and their fixed-end moments are taken by the structure.

• **Formwork re-used**—Since the building contains many identical bays, the contractor found it economical to prefabricate the greater part of the formwork. Wood forms were built for four uses, and enough ¼-in. pressed-wood form lining was ordered for five uses.

Columns were cast first. Then, falsework was erected to support forms for the rigid-frame arches, while forms for beams were shored to the floor below. The beam forms consisted of a bottom panel and two side panels. Designed to serve also as formwork for part of the adjoining ceiling, the beam side panels were made L-shaped. They could be stripped, moved ahead and reset as a unit.

Forms for the floor slabs were prefabricated in four sections, to fit two abreast between the beam forms. Closure between pairs of form panels was made at the center with narrow wood strips, to facilitate stripping without damaging the panels. The strips had battered edges so they could be wedged in place.

• **Cranes place concrete**—A batching plant was set up about ¾ mi from the terminal. It included two 28-S concrete mixers, standard three-compartment batching bins and aggregate-weighing equipment. Concrete with a 28-day strength of 3,000 psi, or more, was obtained with a mix having a two to three-inch slump. Each cubic yard of concrete contained 7 sacks of cement, 1,100 lb of sand, 1,800 lb of stone, 6 oz of an air-entraining agent and 30 to 33 gal of water, depending on the moisture content of the aggregates.

Concrete was transported to the building in 1-cu yd buckets on trucks. At the site, either of two cranes, which operated on opposite sides of the structure, lifted the buckets for discharge at second-story level.

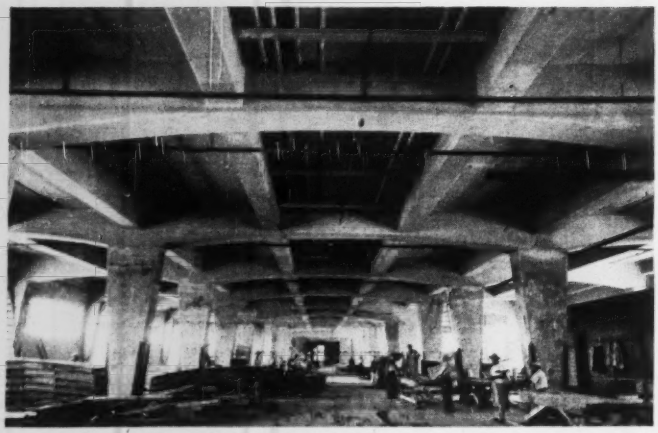
At the begining of each pour, the buckets were emptied into hoppers set up on the previous pour. These hoppers, in turn, discharged into buggies, which traveled over runways to forms at the center of the building. But when areas to be poured were within reach of the cranes, concrete was placed directly from the buckets. For roof areas beyond the height of the cranes, concrete was raised on hoists.

Concreting started simultaneously at both outshore and inshore ends of the building. One complete 26-ft long bay was cast at a time, requiring 140 cu yd of concrete. Construction joints were located midway between rigid frames.

• **Handling of passengers**—The general arrangement of facilities for handling passengers and cargo in the completed structure are shown in accompanying sketches.

When a ship docks, a self-powered platform will move along the apron of the pier—on the same rails used by the gantries—to a position opposite the passenger disembarkation point on the ship. A portable gangplank will then be placed between the ship and the platform, which is at second-floor level. Lift trucks will be loaded on this platform by the ship's derricks and then will transport the cargo along the second-floor apron into the warehouse.

When passengers disembark, they will walk along the second-floor apron to the nearest entrance to customs in-



RIGID FRAMES 26 ft apart support the upper floors of the terminal building. Upper-story columns are doweled to frames below; bottom columns have rocker bases.

spection. An area 65 ft wide by 551 ft long has been allotted for this purpose. Since the space needed will vary from time to time, a portable barrier will be placed across the floor to define the inspection area, leaving the remainder of the floor for cargo storage.

From customs inspection, passengers will pass through a gate into the waiting room, where will be found steamship offices, rest rooms, concessions, and the main stairway to the restaurant above. The waiting room will be attractively finished with terrazzo floor, blue-glass-tile wainscot and acoustical tile ceiling. A lobby at the far end will lead directly to the main entrance.

Between the main entrance and the shore end of the pier—a distance of 260 ft—is a parking area with space for 46 cars. A two-lane roadway and sidewalk will encircle the end of the parking space in front of the main entrance. Folding gates will limit direct access to the second-floor apron, which extends along the sides and across the ends of the second story.

The two-lane roadway converges at the shore end of the pier into one exit and entrance lane separated by a center island. A viaduct carries this roadway over the railroad and roadways in the port yard. It conects with the express highway to La Guaira and Caracas, which at this point is at about the same level as the second floor of the passenger terminal.

The viaduct is a reinforced concrete structure about 560 ft long. It is supported at 52-ft intervals on a single, centrally located row of columns. The single-column construction offers less obstruction to the traffic below than would conventional multiple-column construction and presents a pleasing appearance.

• **Movement of cargo**—Almost the entire first story of the building is given over to the storing and handling of cargo. Two 10-ton freight elevators will transfer cargo from the first to the second floor for customs inspection and storage. These elevators are self-leveling, with automatic bi-parting doors. Platforms are large enough to accommodate a small automobile or two fully loaded lift trucks.

For movement of cargo in and out of the building at first floor level, large doors are provided in every other bay in the exterior wall along each side and end of the building. These open to the main deck, which has an apron 35 ft wide along each side of the building and 43 ft at the sea end.

A railroad siding consisting of two tracks with crossovers every 370 ft extends along each apron to the end of the pier. Straddling the tracks, rotating gantry cranes will run along each side of the pier. These are of a type more commonly used in European ports than American. They are fast and efficient in handling light cargo. They can unload from the ship directly onto railroad cars or trucks, or onto lift trucks on the pier deck and second-floor apron for transportation into the customs warehouse.

Engineering and construction for the port expansion is being done by the Frederick Snare Corp. for the Ministry of Public Works of Venezuela. Work is under the direction of Gerardo Sanson, Minister of Public Works, Carlos Carbonell, director of ports and airports, and Bernardo A. Nouel, chief engineer of ports. Frederick Snare Corp. is represented by Robert R. Ellis, Jr., vice-president and manager of its Caracas office, and by A. A. Chamberlain, project manager.

Improved plaster prevents blister-type failures

This work was prompted by widespread blister-type failures, which cost the nation millions of dolars annually in repairs. Technical details of the investigation and recommendations are given in NBS Materials and Structures Report 121, "Investigation of failures of white coat plaster," by L. S. Wells, W. F. Clarke, E. S. Newman and D. L. Bishop. (Price 25 cents from the Superintendent of Documents, Washington 25, D. C.)

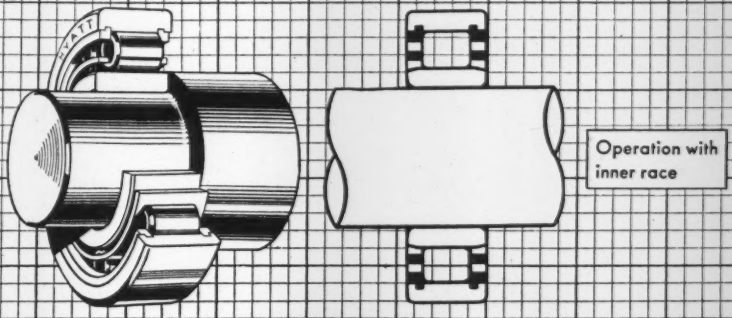
Studies showed that the failures were caused by expansion of one of the components of partly hydrated dolomitic lime, which is used extensively throughout the country for preparing finishing plaster. This component—unhydrated magnesia—was found to be characteristic of a large percentage of such limes. It takes up water from the air over a period of time and expands. In from 5 to 20 years, the plaster finish may be badly damaged.

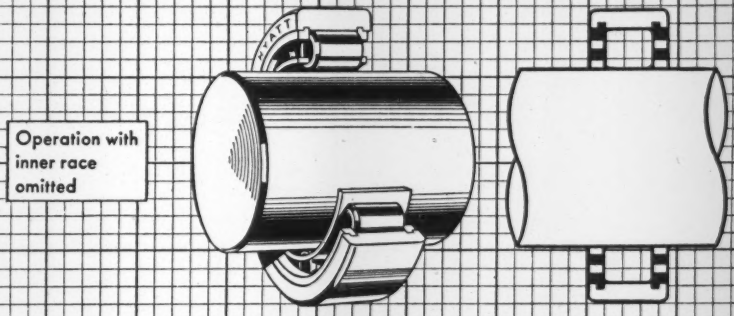
Methods for treating the lime and decreasing the unhydrated magnesia content have been developed by the NBS in cooperation with industry. They already have been introduced in commercial production, and the resulting limes are believed not to be subject to blister-type failures.

The American Society for Testing Materials, American Standards Association and the federal government have now adopted new specifications based on the NBS findings. ASTM designates the new lime as Type S, and the older, Type N, hydrated dolomitic lime.

The new method of manufacture involves use of a large autoclave in which steam at high pressure and temperature effects a chemical bonding of water with components of the lime. Resulting compounds are stable with respect to water. Consequently, volume expansion due to hydration is precluded, thus eliminating plaster failures due to this cause.

Design Option with HYATT HY-LOADS





Hyatt Hy-Loads are high capacity cylindrical roller bearings for radial loads, or light or intermittent thrust loads. They are available in many variations of cage, race flange and snap ring arrangements in a wide range of sizes and likewise due to their separable features they can be used for almost any design.

Here's just one example of flexibility in design—the omission of inner races where maximum shaft strength and rigidity are the principal consideration and bearing over-all size must be kept to a minimum. The inner race, as illustrated, in this type Hyatt Hy-Load Roller Bearing can be omitted and the rollers operated directly on a properly hardened and ground shaft.

Hyatt Hy-Load Catalog No. 547 gives full information on all types and their application advantages. May we send you a copy? Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

WELDED STEEL BRIDGE over the Withlacoochee River— and its twin over the Suwannee—in Florida saved owner $130 per lin ft.

Continuous girder bridges made less costly

FLORIDA'S renowned Suwannee River and one of its branches—the Withlacoochee— are being bridged at relatively low cost. The main crossing over each waterway consists of a 24-ft wide concrete roadway carried on steel stringers and floorbeams, which in turn are supported on two welded girders of composite construction, continuous over three spans. The State Road Department estimates that these spans cost $220 per lin ft as compared with $350 for conventional steel-girder construction.

Spans are 84-126-84 ft and are designed for H15-44 loading.

Where the top flanges of the girders are in compression, they are helped in carrying the load by the 7-in. thick concrete roadway slab. Near the center piers, where the bottom flanges are in compression, depth of the girders had to be increased, since the slab can be of no assistance there. Composite construction also was used for the longitudinal stringers.

• Construction was simple—The continuous span has four field splices in each girder—one in each side span and two in the center span. Hence, to erect the structure, the contractor needed only two falsework bents, in addition to the permanent supports. Here's how he did it:

A field splice is located 54 ft from each end bearing. Under these splices, the contractor erected the falsework. He then set the 54-ft side-span sections, each with one end on a permanent end bent and one end on the falsework. Next, he erected 58-ft lengths of girders, resting one end on the falsework and cantilevering the other end 28 ft beyond the interior piers. Splices over the falsework were bolted temporarily. Finally, two 70-ft lengths of girder were set in the gap between the cantilevers and bolted to them (Cranes on a pile-supported working platform alongside did the mid-span hoisting.) Later, all splices were welded.

All of the permanent bridge supports rest on steel H-piles that were driven to rock. At the ends of the continuous span, piles are capped with reinforced concrete in conventional fashion, but for the two interior piers a novel design was used that the State Road Department believes saved money.

Built in the river, each interior pier is a 26-ft long reinforced concrete wall. It is 15 in. thick, except at the ends and top, where it is heavied up for added rigidity. The bottom of the wall is about 7 ft above normal water level.

The wall is supported on two pile clusters, each containing seven piles. About 10 ft at the top of the piles is encased in concrete. Formwork for this encasement was a 7-ft dia galvanized corrugated metal pipe, from 12 to 14 ft long, that was set over the tops of the piles and driven into the sandy river bottom. The pipe was left permanently in place.

Interior piers support fixed bearings; end bents carry expansion bearings.

• Girder details—The continuous girders are built up of plates. Up to the field splice, the side spans consist of a 45 x $\frac{7}{16}$-in. web and 18 x $\frac{7}{8}$-in. top and bottom flanges. Flanges are attached to the web with $\frac{7}{16}$-in. continuous fillet welds, which were applied concurrently on opposite sides of the web.

The central 70 ft of the middle span also has a 45 x $\frac{7}{16}$-in. web, but the top flange is 20 x 1$\frac{3}{4}$ in. and the bottom flange 20 x 2 in. These plates are joined to the web by a $\frac{3}{8}$-in. weld.

The remaining portions of the girder —the haunched sections—have a $\frac{7}{16}$-in. web, which is deepened from 45 in. at the splices to 74 in. over the interior piers. Two 18 x 1$\frac{3}{4}$-in. plates serve as flanges for most of the haunched length, the top flange being level and the bottom curved. These web and flange plates are connected by $\frac{3}{8}$-in. continuous fillet welds.

To enable the concrete roadway to assist the girders by carrying some of the compressive stresses, the top flanges of the girders had to be tied

to the slab. For this purpose, ⅝-in. round bars were wound into 4-in. dia spirals, welded to the top flanges and embedded in the concrete. Pitch of the spiral varies from 7 to 14 in., as needed to transfer shear between the slab and flange plates.

The helical bars were applied to the flanges only in the outer 63 ft of the side spans and in the middle 83½ ft of the center span. They were attached with ⅜ x 1¾-in. fillet welds.

At the outer ends of the side spans and over the center supports, the girders are stiffened with two pairs of 8 x ¾-in. plates. At intermediate points, a single 8 x ½-in. plate serves as a stiffener, successive stiffeners being placed on opposite sides of the web. Stiffeners are attached to the web with intermittent fillet welds. Only the edges are welded to the flanges.

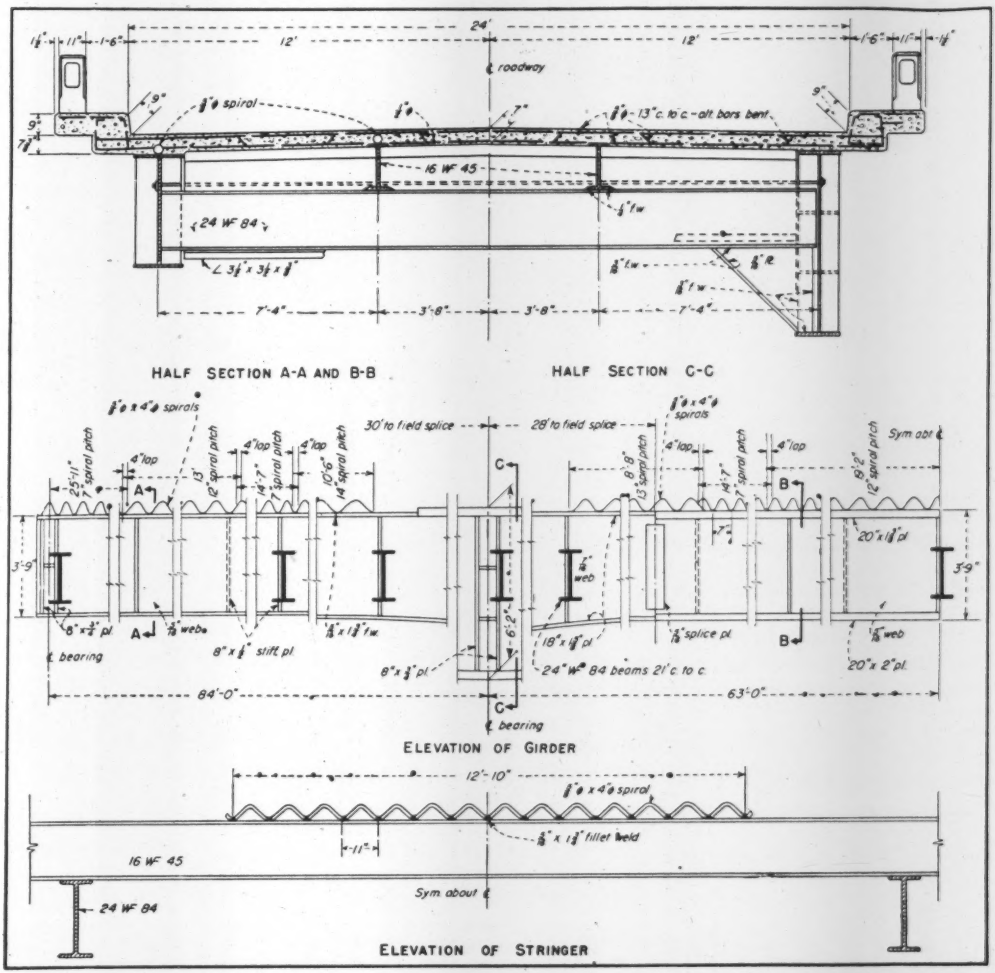
Field splices were made by butt welding web and flange plates. A semicircular hole was provided in the web at the junction with the flange to permit butt welding the flange splice. Temporarily, a ⅜-in. plate was bolted on one side of the web with eight ¾-in. erection bolts until field welds were completed. This plate also was welded to the web.

• **Floor members**—Spanning 22 ft between the girders, 24-in., 84-lb wide-flange sections serve as floorbeams. They are attached by rivet bolts to stiffeners at 21-ft intervals along the length of the girders. Diagonal bracing extends between the bottom flanges.

Two continuous 16-in., 45-lb. stringers are supported on and welded to the top flanges of the floorbeams. In the middle of each panel, helical bars are welded to the top flanges of the stringers for a distance of about 13 ft for shear transfer between these members and the roadway slab.

Both the bridge over the Suwannee and the one over the Withlacoochee were designed by the Florida State Road Department in Tallahassee. W. E. Dean is engineer of bridges.

D. S. Wainer Construction Co., of Valdosta, Ga., was the general contractor. Steel was fabricated by Virginia Bridge Co.



COMPOSITE CONSTRUCTION, in which spiral bars are welded to the top flanges of girders and stringers where compression occurs to make the concrete roadway share in carrying the stresses, helped make the bridge economical.

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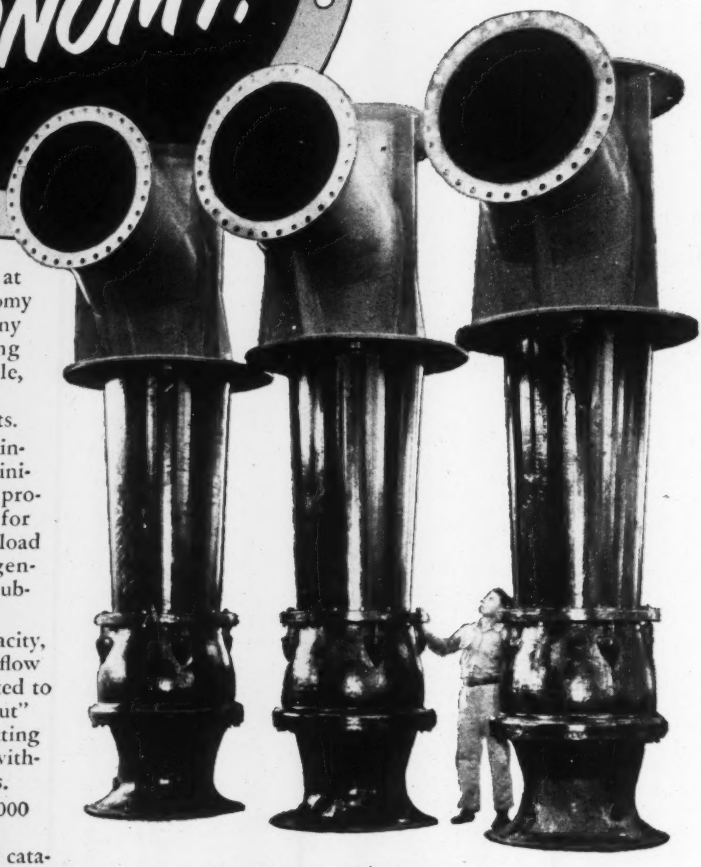

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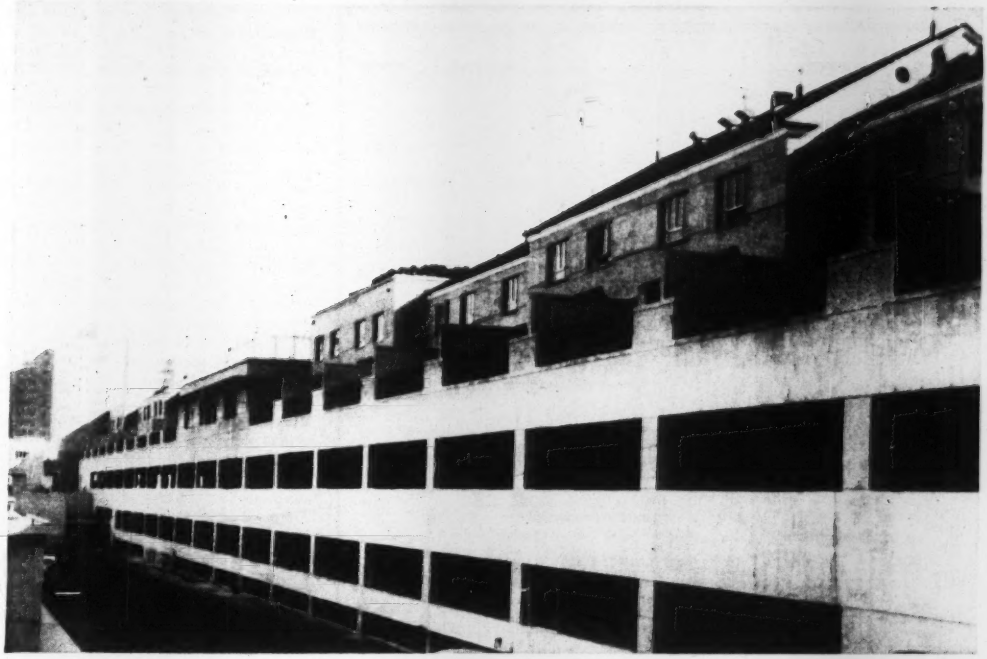


TWO-STORY APARTMENT UNITS occupying a full city block are built atop a three-story, side-hill garage in San Francisco. The garage will handle cars from nearby 13-story apartment towers of Metropolitan Life's Parkmerced project.

Garage roof supports 46 housing units

NEARING COMPLETION in San Francisco is a complex structure that includes 46 two-story apartment units built on top of a three-level, side-hill garage.

Design in reinforced concrete was an involved engineering problem: Limited headroom in the upper level of the garage restricted use of concrete beams supporting the apartments; architectural layout was such that apartment walls in many cases did not coincide with garage columns. Irregularity of these walls added complex factors in the analysis of the walls as supporting beams.

The garage, 180x659 ft in plan, is entirely concrete but has no expansion joints. The earthquake-resistant design emphasizes limited concrete shrinkage. Capacity will be 1,126 cars.

(A comparison of the Parkmerced structure with San Francisco's Union Square Garage is interesting. Probably the biggest underground garage yet built [ENR Nov. 20, 1941, vol. p. 714] Union Square, completed in 1943, extends four levels below ground surface and occupies an entire city block. It is 416x275 ft in plan and will park 1,700 autos—the equivalent of 125 blocks of city street parking.)

The garage and apartment structure is part of the Metropolitan Life Insurance Co.'s $30,000,000 Parkmerced project. In addition to many two- and three-story apartment buildings, the project includes eleven 13-story apartment towers (see box).

The apartment development occupies a 200-acre tract in what is practically the last area in San Francisco available for development. The tract overlooks Lake Merced, several golf courses, and in the distance the Pacific Ocean. All of these are assets for the high-rent type apartment development that this is.

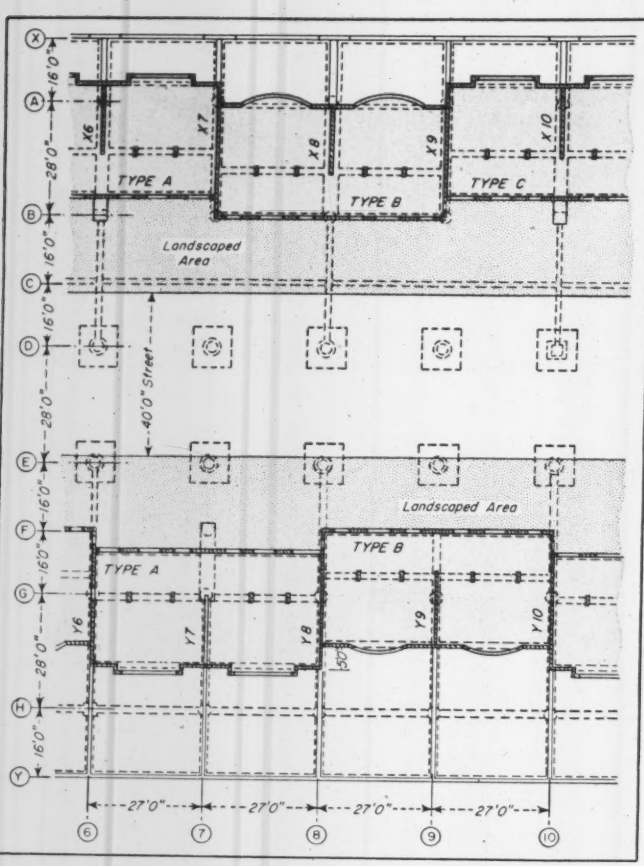
Carport-type parking facilities are provided near the smaller units. However, for the concentration of tower-type apartment buildings, more extensive garage facilities are necessary. The garage building in question is the largest of three for the project.

Auto entrances at Parkmerced are placed at each end of the garage, on ramps leading down from side streets. Parking is on a self-service basis and for access to the various garage levels there are ten sets of stairways, two elevators and two pairs of automobile ramps.

• **Apartments on roof**—The 46 apartments on the garage are situated on a street running down the center of the garage roof except for access portions near each end. Each apartment is 27 ft wide by 28 ft deep and is two stories high. Walls, floors and roofs of the units are reinforced concrete.

Besides the load of the apartments, the garage roof must also support an average depth of 2 ft of loam in landscaped areas between the street and the apartments. This is part of the effort extended to make the entire apartment development as attractive as possible.

• **Split floor plan**—Each floor is built in two sections, with one section 4½ ft lower than the other. The floor slabs are 10 in. thick, giving an 8-ft 2-in. ceiling height since there is only 9-ft elevation difference from floor to



LAYOUT OF APARTMENT UNITS on part of the garage roof shows how pairs of apartments are staggered. Shaded areas are apartments proper. Dashed lines represent beams, walls, columns, and column capitals supporting garage roof. Solid lines are walls in first floor of apartments and cross-hatched areas are second-story apartment walls.

floor (both sections). Drop panels are 16 in. thick.

Each lower level floor is 60 ft wide, each upper level 120 ft wide (total width 180 ft). Separating the two levels is a concrete wall that is solid except for ramps, stairways and ventilation openings. This serves as column support and also acts as a shear wall for lateral resistance (see column line C on the plan).

The garage can properly be classed as an underground unit by virtue of access, and appearance from the top. It is actually built into a side hill with much of it placed on fill made during construction of other areas of the Parkmerced development. This fill exists at both ends of the garage site, with original ground rising in the center portion. No reliable records are available of the full character and nature of the fill.

• **Use caisson-type foundations**—When confronted with the prospects of placing a sizable structure on this fill, the engineers decided to use caisson-type foundations, due to the highly variable nature of the material. The caissons have 3½-ft dia shafts and the bells at the bottom range from 9- to 12-ft dia. They extend as much as 46 ft below first floor level and at least 2 ft into natural ground. For that portion of the garage founded on natural soil, spread footings are used to carry the loads.

Some of the belled caissons were formed in sand. In these cases, the contractor undertook unique procedures at the bottom of the steel casings. Reinforcing bars at 6-in. centers were driven around the bell. These effectively held the sand back while the belling rig excavated the bells. Some hand cleaning was all that was necessary to complete forming of the caissons.

• **Design complicated**—As has been noted, design of the support for the two-story apartment units was made complex by lack of headroom on the upper floor of the garage building. Had normal practice been followed, the deep concrete beams required would have seriously impaired usefulness of the top floor of the garage.

As an expedient and because it was actually more economical, the engineers used the walls of the apartment units as beams supporting these superimposed structures. In most cases this "beam" is two floors deep.

Structural analysis of the apartment units was made difficult by irregularity of the wall lines. The engineers analyzed the entire structure by both a continuous beam method (neglecting yielding of the foundations) and by a "plate" method. Each analysis gave completely different results.

For example, in wall X9, by the continuous beam analysis, reactions in columns X9, A9 and B9 are 3 kips, 380 kips and 280 kips, respectively. These conditions would result in a negative moment of 690 ft-kips at column A9.

But by considering the wall beam as a rigid vertical plate set upon three yielding supports (assuming equal rigidities), reactions in the three columns are 122 kips, 197 kips and 345 kips. This analysis would result in a positive moment of 1,160 ft-kips at column A9.

The engineers reasoned that actual conditions probably lie somewhere between these two extremes. In this case, the conventional continuous beam analysis is quite far from the true picture. On the other hand, quantitative results of the plate theory are bound to be highly variable. That's due to the uncertainty of exact ground conditions since there is fill under much of the building. Also, considerable variation is introduced by live load conditions, particularly in the garage.

• **Reinforcement**—As a result, actual reinforcement of these apartment walls was largely a matter of judgment—with the two extreme analyses serving as guides. As a check, a third analysis was made after sizing the beams, columns and footings on an assumed moment distribution. This was done to see whether the resultant loads, reactions and deflections satisfied the requirements of statics and elasticity.

Additional complicating factors on the analysis of the building were the necessity to design for earthquake resistance and the high earth pressure on the uphill side. Shear resistance

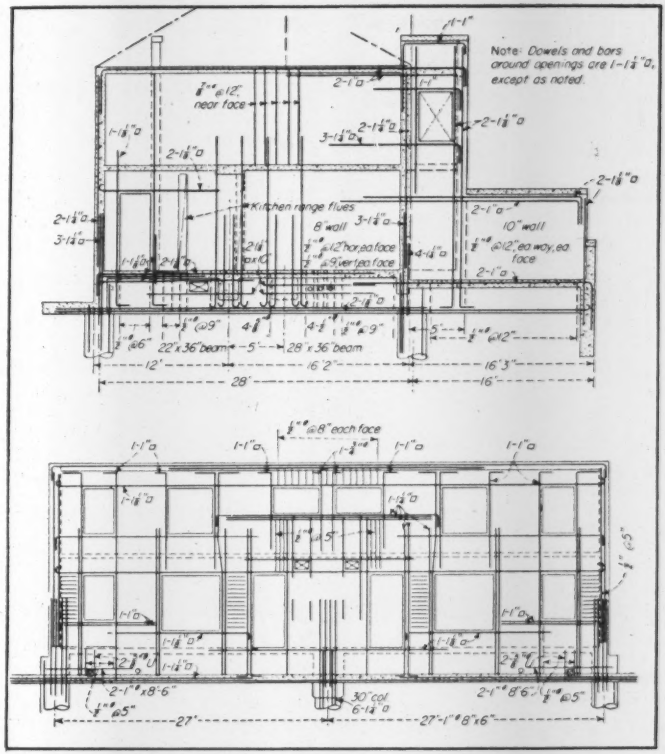
was built into the garage by use of 12-in. thick solid walls at 54-ft centers running 32 ft in width. Rows of these walls were installed on each floor level.

Another difficult matter in connection with the apartment units was the thin walls. Exterior walls were 9 in. thick and interior walls 8 in. thick. Since this provided little room to lap reinforcing bars, dowels from the garage columns extend the full height of the two-story apartment units.

• **Low shrinkage**—Designers of the garage structure restricted shrinkage cracks in the 659-ft-long structure by careful control of concrete during placing and by increasing the amount of longitudinal reinforcing. These measures were considered more economical and surer of getting results than the use of expansion joints. Concrete had a very low slump—between 2 and 3 in. Temperature steel was increased by 25%. In a year since placing the major part of the structural concrete only a relatively few fine hair cracks have appeared.

• **Credits**—Architect on the project is Leonard Schultze & Associates, New York. Associate architects are Harry A. Thomsen and Aleck L. Wilson, San Francisco. John J. Gould, San Francisco consulting engineer, did the structural design with Henry J. Degenkolb serving as chief engineer.

Builders of the project are Starrett Bros. & Eken, New York. Contractors on concrete work are Dinwiddie Construction Co., San Francisco.



WALLS ARE SUPPORTING BEAMS—two stories deep—for bungalow apartments. Reinforcing of typical front and side wall shows steel that had to be added. Design was made before codes permitted new type deformed bars.

PARKMERCED'S TALL BUILDINGS ARE ECONOMICAL

Careful attention to design details produced an economical reinforced concrete frame for the eleven identical 13-story apartment towers at Parkmerced. That's in spite of the conservative earthquake resistance requirements of the San Francisco Building Code.

Economy was achieved primarily by simplifying structural elements to permit savings in cost of formwork. Floors are flat slab with no dropped panels. Instead wide flat beams (10 in. deep) are called for over corridors. Exterior walls serve as bearing walls without use of columns. Many interior partitions commonly built of plaster or other materials are made of reinforced concrete to resist both vertical and horizontal loads.

In general, floor slabs are 7 in. thick even though a 5-in. slab would have been adequate for strength. The thicker slab was chosen to reduce deflections (including those due to plastic flow) and thus minimize partition cracking. The 7-in. slab requires less reinforcing, thus lessening the cost differential.

Exterior walls have no columns and, in general, vary from 13-in. thickness at the first floor to a minimum thickness of 9 in. in the upper stories. Formwork is thus simplified since, in any one floor, spandrels and pilasters between windows have the same thickness.

Reinforced concrete walls generally 8 in. thick serve as interior partitions and as encasement around stairs, elevators and incinerators. This eliminates a goodly number of beams and columns as well as plaster partitions. (In this regard the structural design differs from usual West Coast practice.)

The interior bearing walls also are an advantage in resisting lateral forces such as developed by wind and earthquakes. And this added resistance is accomplished at little additional cost.

In San Francisco, this is an important item. For the Parkmerced towers, lateral load as determined by the S. F. Building Code amounted to 2,370 kips at the base. This corresponds to a wind load of 91 psf on the maximum exposure or 131 psf on the minimum exposure of the building. These structural provisions exceed the recommendations that have been made by the Atomic Energy Commission for blast-resistant design.

Further economies were achieved by detailing reinforcement to give positive assurance that vibrators could be used at all points. Also, there are no special requirements as to forms or reinforcing steel (i.e., no welding or milling of bars).

Final result of this careful design was that the cost of constructing forms and pouring concrete was about 25% less than the lowest previous estimates made. And these savings do not reflect further economies made in plaster work by elimination of columns and pilasters and by replacement of interior plaster partitions with concrete.

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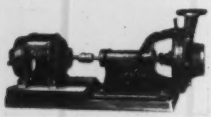

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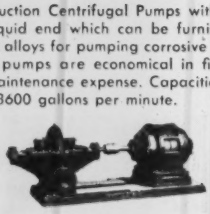

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READER COMMENT

Facts about strain gages

Sir: Reference is made to the article, "How to Use Strain Gages on Concrete," by Arthur R. Anderson, ENR March 8, p 46. It was my pleasure to do some basic research on this problem for my M.S. thesis, "The Use of SR-4 Strain Gages on Concrete," University of Colorado, 1947. While the scope of my thesis did not permit investigation of anything other than a few fundamental problems, it was my considered opinion that this device could and should be used extensively to answer some of the many questions regarding moment of inertia and modulus of elasticity of concrete. Prof. W. H. Thoman, who was my faculty adviser at the time, shared in this opinion.

Mr. Anderson's statement of the principal handicaps involved in the use of this device is quite comprehensive. To overcome the difficulty of bonding the gage to the concrete, I used heavy silver foil, not only to secure a better bond but to protect the gage against moisture. This method proved to be entirely satisfactory for the purpose.

One of the fundamental problems investigated was that of determining the modulus of elasticity. I used 3 x 6-in. cylinders with four SR-4 gages spaced at 90 deg. on the circumference and centered on the longitudinal axis. Results were compared with a compressometer using an Ames dial. Sufficient tests were made to indicate the following results:

1. Electric strain gages properly applied are more sensitive and more reliable than mechanical gages. We found that the mechanical gage was subject to considerable error due to occasional pin-slippage and possibly some bending due to uneven cylinder cap or to the eccentricity of loading plate.

2. The use of two gages, diametrically opposed, is not advisable particularly where the cylinder is used as an experimental control measure. If the cap on the cylinder is not perfectly level, if the loading plate has any eccentricity or if one of the gages happens to be located directly over a disproportionately large piece of aggregate, an error of five to fifteen percent may be introduced. While we found the average of the four gages to give very close to a straight line, an individual gage might vary as much as 50% from that average.

3. The inherent characteristic of hysteresis may be almost completely avoided by loading the cylinders to about 30% of the expected ultimate strength three times before taking the readings used to establish the recorded results.

I, for one, hope that other engineers will use these gages where feasible in an effort to refine and improve concrete design. There is much work to be done in this field and great improvement is possible.

ROBERT E. LATHAM
Department of Building and Safety
Long Beach, Calif.

Concrete form handling

Sir: Your description, ENR, March 22, 1951, p. 31, of an eight ton concrete form being handled as a unit is reminiscent of the handling of a fifty ton cofferdam as a unit by the Pacific Bridge Company of Portland, Oregon in the construction of the Columbia River Interstate Bridge in 1916. The wooden cofferdam was 16 feet wide, 57 feet long and 17 feet high, and weighed 50 tons. This cofferdam was used successively on a number of piers. The forms for the concrete shafts were similarly used successively.

You might be interested in the unit prices paid the contractor for this construction. For concrete in the pier shafts—$9.00 per cu yd; for mass in the bases of piers—$12.00 per cu yd; and for piles below the bases of piers —$.46 per lin ft (these piles were 10 inch tip and 135 feet long). For the construction of temporary ferry slips, piles cost $.25 per lin ft and timber in place cost $30.00 per thousand.

ERNEST E. HOWARD
Howard, Needles, Tammen & Bergendoff
Kansas City, Mo.

Real shortage: editing editors

Sir: I note on page 31 of the April 12th issue that the New York State Highway Dept. is troubled by a shortage of "engineering engineers." There seems to be a similar shortage here, not only of engineering engineers but of designing designers and drafting draftsmen also.

In order to keep the contracting contractors and the material supplying material suppliers busy, it would appear that the educating educators must prod their studying students along at an accelerated acceleration of studious studying.

GEORGE W. MILLER
Structural Engineer
Glendale, Calif.

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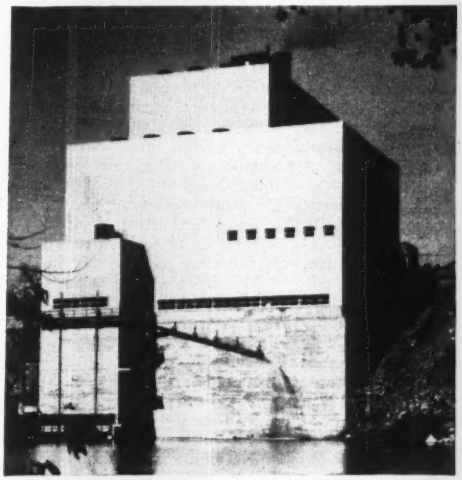

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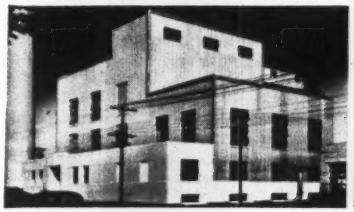
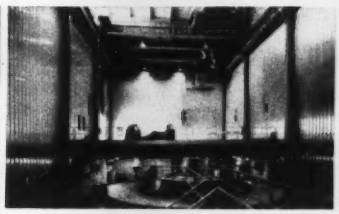
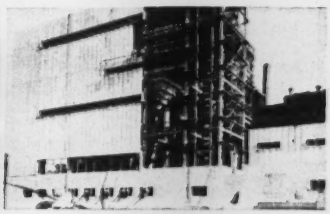


Tennessee Valley Authority Watauga Project
Elizabethton, Tenn.



Note clean, quick, dry, safe, curtain-wall construction.



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CANADA'S FOURTH CITY—Airview of 77-year old Winnipeg, with the sometimes rampageous Red River in the left background.—N.F.B. photo

Winnipeg-prairie industrial center

Winnipeg, Man., is rapidly becoming the industrial metropolis of western Canada. Last year, of 36 new industries which started in the province of Manitoba, 27 were located in Winnipeg. The city now has some 900 industrial establishments with a total valuation of well over $250,000,000.

Winnipeg this summer marks its 77th birthday and has a population of about 375,000. It is the fourth largest city in Canada, and the distribution center between the eastern and western parts of the dominion. The city was built on the development of Canada's world-wide wheat export trade. It has the largest privately-owned railway yards in the world, operated by the Canadian Pacific Railway.

Last year the number of building permits totalled 2,316 with a value of $33,938,140, as against 2,721 permits valued at $27,835,949 in 1949. There was a slowing down in the number of new homes built. This was caused to some extent by the bad floods of the Red River. Since then much money has been spent on renovation, and this year the city is spending $1,900,000 on street paving, sewers, sidewalks and other maintenance. Last year $2,600,000 was spent on such work. A total of $1,700,000 is being spent on schools, as compared with $1,500,000 last year.

But most expenditures in the construction field this year will go to industrial expansion, with new construction estimated at $5,700,000, an increase of $1,300,000 over last year. Repair and maintenance expenditures will add a similar amount, just a little less than was spent last year.

Among major construction jobs now under way in the city are a $10,000,000 oil refinery, a $550,000 steel fabrication plant on a 14 acre site, a $500,000 chemical plant, a $100,000 cement plant, a $300,000 bakery to supply chain grocers, and warehouses for a number of companies with international distribution. At least one British electrical equipment manufacturer is building a plant at Winnipeg, and a number of textile plants and tailoring factories are planned for this year.

Winnipeg will be getting more electric power from developments now under way on the Winnipeg River. It has a good water supply which is piped 90 miles from the Lake of the Woods area and is sufficient for a city of a million population. It has a municipally-owned central heating system which heats a majority of the downtown business buildings and many homes, and also has its own sand, gravel and asphalt mixing plant.

Oil development in Alberta province will play an important part in Winnipeg's future growth, as oil flows into the city from the new pipeline built from the Edmonton area oil fields to Superior, Wis.

Winnipeg is the capital of the province of Manitoba. It was formerly known as Fort Garry, from the Hudson's Bay Company's post so called. It was incorporated as the city of Winnipeg in 1873.

Baltimore voters approve a $49,500,000 program

A $49,500,000 program for port development, schools, a Jones Falls expressway and other civic improvements was approved by Baltimore, Md., voters in a recent municipal election.

All ten of the loans submitted to the electorate carried by heavy majorities. The ten bond measures were initiated by the administration of Mayor Thomas D'Alesandro, who was reelected at the polls.

Voters approved a $12,000,000 loan to be used for three self-supporting port improvement projects, $10,000,000 of which will be spent for developing facilities of the Western Maryland Railroad at Port Covington, with the city to be reimbursed. It marks the initial step in a program to develop Baltimore harbor facilities.

Voters authorized the issuance of $12,000,000 in bonds to finance the construction of school buildings and extend the $35,500,000 school building program now under way.

Approval also were given for a $10,000,000 loan for the first section of an expressway up the Jones Falls valley from the center of the city to the northern city line, joining with the Harrisburg, Pa., expressway now under construction.

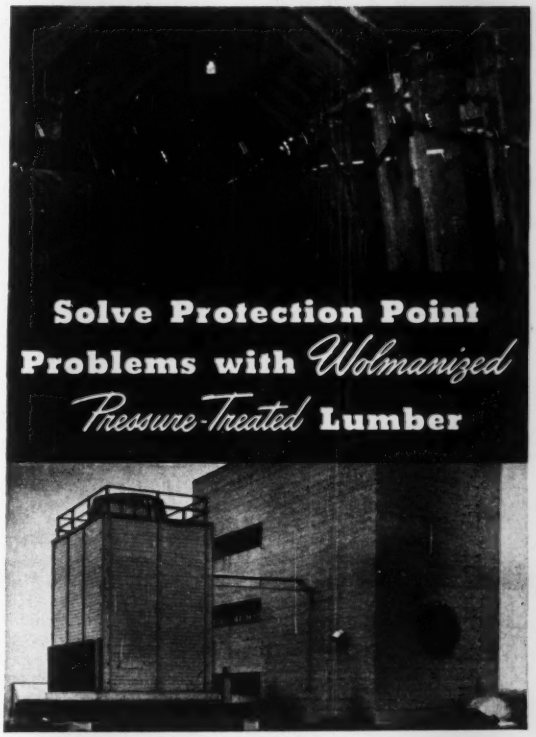
The entire project is expected to cost $30,000,000, but city officials figure the remaining $20,000,000 can be financed by federal, state and pay-as-you-go funds. Actual construction will not begin until 1953.

A $5,000,000 self-liquidating loan for off-street parking was among the loans approved. This will continue the program under which the city helps to finance off-street parking facilities. City officials estimate that the funds approved will provide 4,000 additional parking spaces.

Among the other loans approved were $4,000,000 to complete the renovation of the Courthouse, construct a new infirmary at the City Hospitals and erect a new Eastern health district building; authorize the issuance of $3,000,000 in bonds to finance the construction of a new incinerator, and $500,000 for the installation of traffic signals.

Multi-level garages—Parking problems along the ocean front could be solved easily, Councilman Maurice Klein believes, if property owners would agree on the building of multi-level garages. The zoning board has recommended that the way be cleared to permit such construction in the same area as hotels.

(*Continued on next page*)



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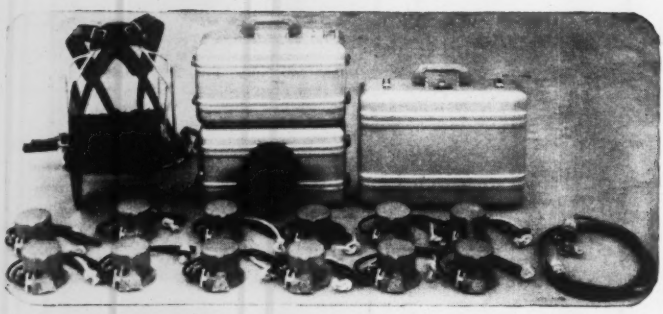

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Municipal Briefs

High bids rejected—At Denver, Colo., when contractors' bids for interior work on a big annex to the city auditorium exceeded city estimates by more than 200 percent they were rejected, and Thomas P. Campbell, manager of improvements and parks says it is now necessary to have specifications rewritten, plans redrawn, and every effort made to cut back costs as much as possible.

Bi-city disposal plant—The construction division of the Welsbach Corp. has been given a contract for the construction of a sewage disposal plan to serve the cities of St. Joseph and Benton Harbor, Mich. Located on Terminal Island in the St. Joseph River between the twin cities, the plant will cost $1,750,000 and be completed late next year.

Town to move 4 miles—The 370 residents of Republican City, Neb., are all packed up and ready to move their town to a new site on a hill four miles away. The reason is that the present townsite will soon be under 25 ft. of water in a reservoir behind Harlan County Dam, now nearing completion as part of the Missouri Basin development.

Aerial survey—To reduce field work for engineering details, for $40,000, the city of San Diego, Calif., has contracted with Fairchild Aerial Surveys, Inc. of Los Angeles for an aerial photographic survey of eastern sections of the city. The survey will extend over several years, according to Russel A. Hall, assistant city engineer. The next area to be covered will be San Diego harbor.

Construction by contract—The Providence, R. I., Water Board has decided to contract with private organizations for future new construction, Philip J. Holton, chief engineer, has completed an investigation of costs, indicating that this plan will result in annual savings of $120,000. The distribution division force will be reduced from a peak of 115 men to 55, who will handle maintenance only. Costs on three pipe-laying jobs ranged in contractors' bids between $2.58 and $3.25 per ft for 6-in. pipe and from $3.17 to $3.65 for 8-in. pipe. Last year the cost of installation by city crews ranged from $3.44 for 6-in. pipe to $4.30 per ft. for 8-in. pipe. The latter prices did not include time lost by unfavorable weather, vacations, and other holidays. More systematic maintenance work is to be planned under the new arrangement.

FOREIGN

Concrete-block lighthouse 125 ft high prestressed with vertical cables

French engineers have built a prestressed, precast circular lighthouse that is literally held up by its own bootstraps.

Steel cables anchored at one end in the poured-in-place concrete base of the structure are channeled through indentations in precast sections, which—stacked one atop the other—make up the tower. Then, the cables are tensioned and anchored at various levels to clamp the sections together.

The lighthouse is 125 ft tall and 18½ ft in diameter. It has great rigidity and can resist high wind velocities. This is necessary since the tower is built on a flat, low part of the English channel coastline at Berck-sur-Mer.

Base of the shaft measures 20 ft at its upper diameter and 29½ ft at its lower level. A bottom wall 18½ ft high and 3 ft 9 in. thick also was cast-in-place.

• **What takes the clamp**—Precast sections of the circular tower were clamped to this base by 36 cables. There are four basic structural elements in the building:

1. Curved units 6 in. thick, 14 in. high and 19 in. long. Thirty-six of these basic, precast elements are needed to form a complete ring.

2. Reinforced curved units somewhat thicker than the basic units. These units carry female anchorage cones which are of the Freyssinet type.

3. Window blocks poured about bronze-framed windows. These are 3½ ft high—nearly three times the height of the basic unit.

4. Circular frames of prestressed concrete 18½ ft in diameter, 8 in. thick and 4 in. deep.

• **They are grouped in threes**—The tower is made up of 28 groups, each composed of three rings of curved units. Between each group of three rings is interposed one of the prestressed frames, to resist transverse deformation.

The basic curved units were laid in mortar with vertical joints in line. Cables were threaded through and anchored above the prestressed frames in the thicker units (type 2). Nine cables were terminated at each of four different levels. There are two sets of vertical cables:

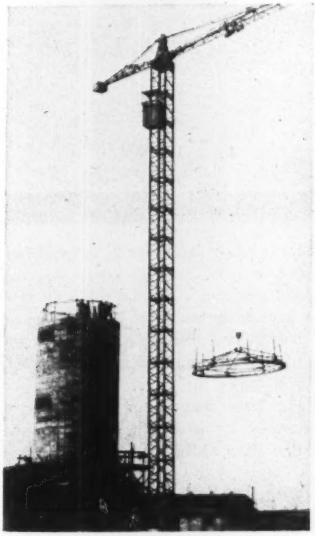
a. Cables for prestressing the base and bottom wall. These are made up of 18 wires, each 5 mm in diameter. These cables extend from the bottom of the base to the top of the cast-in-place walls. At the foot of the base, the cables are hooked and the wires exposed to allow bonding with the concrete. The remainder of each cable is wrapped in two coats of bitumen and twice wrapped with heavy bonding paper, applied in alternating layers to prevent corrosion and bonding with the concrete.

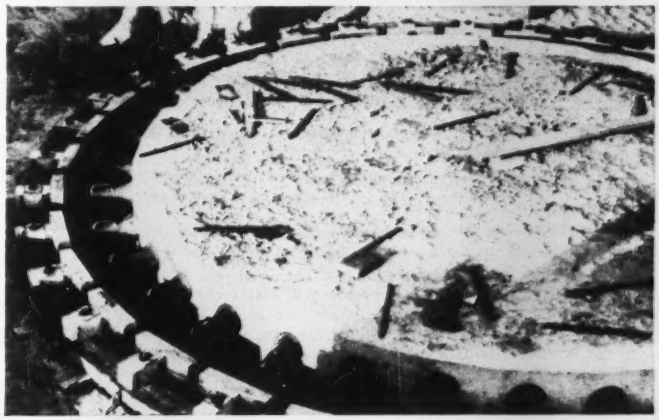
b. Vertical cables in the interior of the tower are each formed of 12 steel wires 5 mm in diameter. These are bituminized to prevent corrosion. Since the cables run inside the building (not inside the walls) any cable in danger of failing as a result of corrosion can be removed from its anchorages and be replaced.

The cables are stressed to a permanent tension of about 120,000 psi. They have an ultimate strength of over 200,000 psi, with a conventional elastic limit of nearly 160,000 psi.

• **The prestressed curve**—Prestressing of the circular frames of the tower was achieved by running 16 wires near each of the curved surfaces of the frames. The wires passed through perforations in concrete blocks spaced 10 deg apart around the circumference of the circle. Stressing was accomplished by jacking these blocks away from an inner concrete ring. Concrete was then cast, and later, the jacks were removed after the concrete had gained sufficient strength. Concrete of the frames is precompressed to 950 psi.

The tower was built under the supervision of Eugene Freyssinet and Georges Tourry, chief architect, Batiments Civils et Palais Nationaux of France. Full description of the project was in TRAVAUX, Dec., 1950, and in an English translation of a paper by Mr. Tourry, "The Reconstruction of Berck Light Tower in Prestressed Concrete," presented to the conference of Maritime Signalling Services in Paris. Translation by the U. S. Coast Guard.





LIGHTHOUSE IN FRANCE was built of precast concrete blocks prestressed with vertical steel cables. Between every three courses of block a circular prestressed concrete frame was inserted. As shown below, this frame was prestressed by pushing the cables away from a central circular anchorage with jacks. At left a hammerhead crane is shown lifting into place one of the prestressed frames.

How about a YARD

IF insurance was a package sold over the counter, we'd describe our product like this:

Step right up mister . . . try an American Mutual policy on for size! See if it doesn't fit your company's needs better than anything on the market today!

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We've specialized for *more years than any other liability insurance company in America* at cutting these costs. Business savings has been our business for 64 years!

Result: In hundreds of cases, we've helped industries reduce their insurance rates from above average to below average for the field.

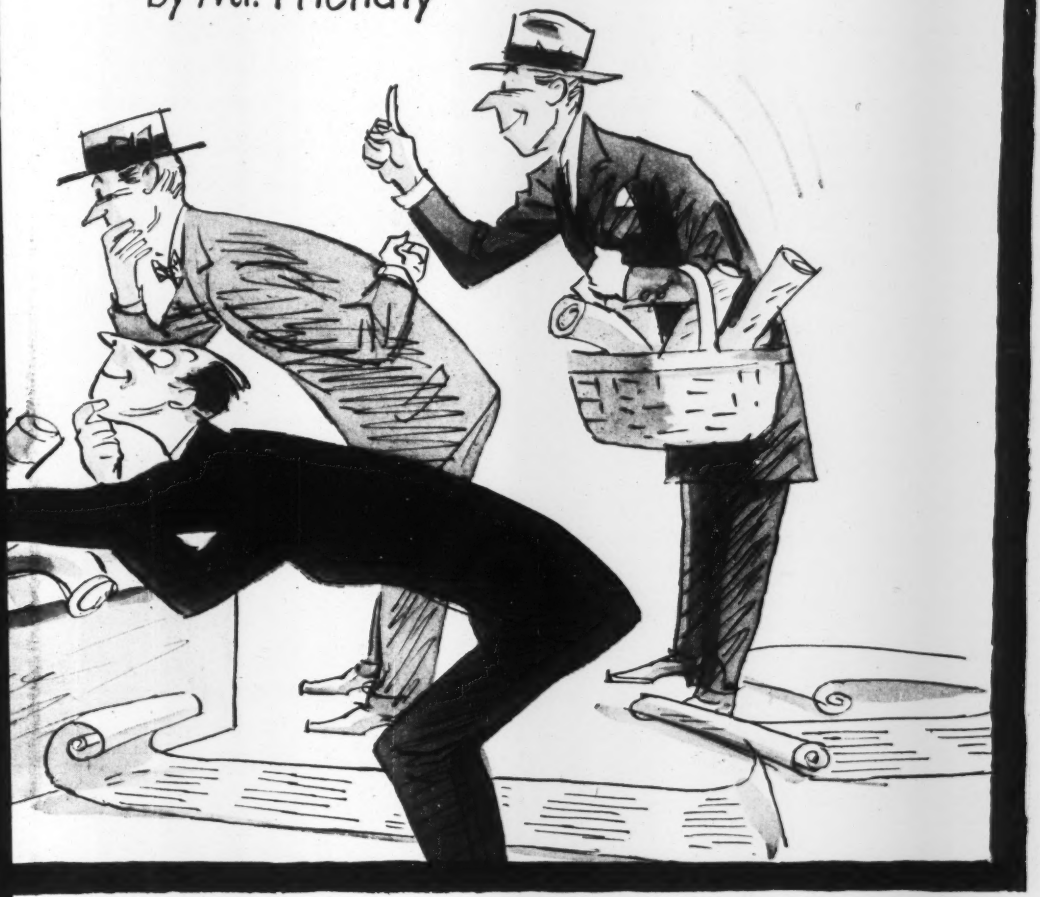
And that's just part of the package! Wrapped up inside is an opportunity to save 15% through dividends . . . there's a promise of fast, fair settlement of claims . . . with 78 offices from coast to coast to back it up!

The point is . . . if you really shop for insurance, if you examine the material . . . compare it for quality and value, we think you'll find American Mutual policies the finest reading in the field.

Some businessmen find them as beautiful as a fistful of crisp thousand-dollar bills!

# of Beautiful Insurance?

by Mr. Friendly



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MEN AND JOBS

New Appointments

Highway departments

H. C. Perkins has been named chief of the Arizona state highway department's engineering forces, succeeding **W. C. Lefebvre.** He has served the state of Arizona in the department for 27 years.

Robert Canfield, district engineer at Tucson was named to succeed Perkins as deputy engineer. **Frank Berg,** senior highway engineer, succeeds Canfield.

Howard S. Ives has been appointed coordinating district engineer of the Connecticut State Highway Department. He joined the department in 1917 and served in the Army in World War II.

City, state and county

Egil Wefald is now village engineer, Richfield, Minn.

F. L. Kramer is the new city engineer of Neodesha, Kan.

M. A. Burrows is asst. director of the Redevelopment Land Agency, Washington, D. C.

James E. Harley is now surveyor of Rush County, Ind.

Corps of Engineers

Col. W. P. Trower is now engineer, Great Lakes Div., succeeding **John R. Hardin.**

Col. J. S. Seybold is now asst. chief of engineers for personnel and administration, Washington, D. C.

Col. D. S. Burns is now engineer of the South Pacific Div., San Francisco, Sacramento and Los Angeles, Calif.

Consulting Engineers

Cotton, Pierce, Streander, Inc., associated engineering consultants, 683 Atlantic Ave., Boston 11, Mass., water supply and distribution, sewage and industrial waste plants, city planning and design of industrial plants, offices in New York, Washington, Philadelphia, Gowanda, N. Y., Fair Lawn, N. J., Boston, Fort Erie, Ont., and Havana, Cuba.

Robert G. Deitrich, associate of J. L. Faisant and Associates, Baltimore, Md.

Industrial and commercial

Gerard C. Weeshoff has been named vice president and manager of the southern California branch of A. Teichert & Son, Inc.

John M. Griffith has been appointed engineer of research of the Asphalt Institute.

K. A. Truman of Winnipeg, Man., has been appointed special engineer for the Canadian Pacific Railway at Calgary, Alta.

Paul E. Feucht, a civil engineer and vice-president of the Pennsylvania Railroad's western division, will become executive vice-president of the Chicago and North Western Railway system on Aug. 1.

John M. Budd has been elected president of the Great Northern Railway. He is a civil engineer and a graduate of Yale. His father, Ralph Budd, was G. N. president, from 1919 until 1932.

Melvin Overstrud has been elected president of Pioneer Engineering Works, Inc., Minneapolis, Minn. Mr. Overstrud succeeds **Lewis W. Yerk,** retired.

Retirements

Jas. P. Kemmerer, 70, deputy surveyor, San Bernardino, Calif., 44 years.

John Leslie Rannie, dominion geodesist and member of the International Boundary Commission, has retired after 42 years. He received a presentation from Marc Boyer, Deputy Minister of the Department of Mines and Technical Surveys, in which he has served in recent years.

Resignations

R. H. Mick, city engineer of International Falls, Minn.

H. W. Bischmann, Army engineer, Rock Island, Ill., dist. to join a construction firm at Davenport, Iowa.

W. E. Baldry, city engineer, Topeka, Kan., 30 years.

E. C. Swanson, engineer, Lake of the Woods County, Minn.

Charles H. Sells, executive director of the New York Good Roads Association since its organization in 1949, has resigned to permit him to devote his entire time to his consulting engineering practice in New York City. Mr. Sells formerly was head of the New York State Department of Public Works. William H. Duffy has been named executive secretary of the association and will take over the work handled heretofore by Mr. Sells. Robert J. Shillinglaw, who went to the association with Mr. Sells when it was formed in 1949, as director of public relations also has resigned.

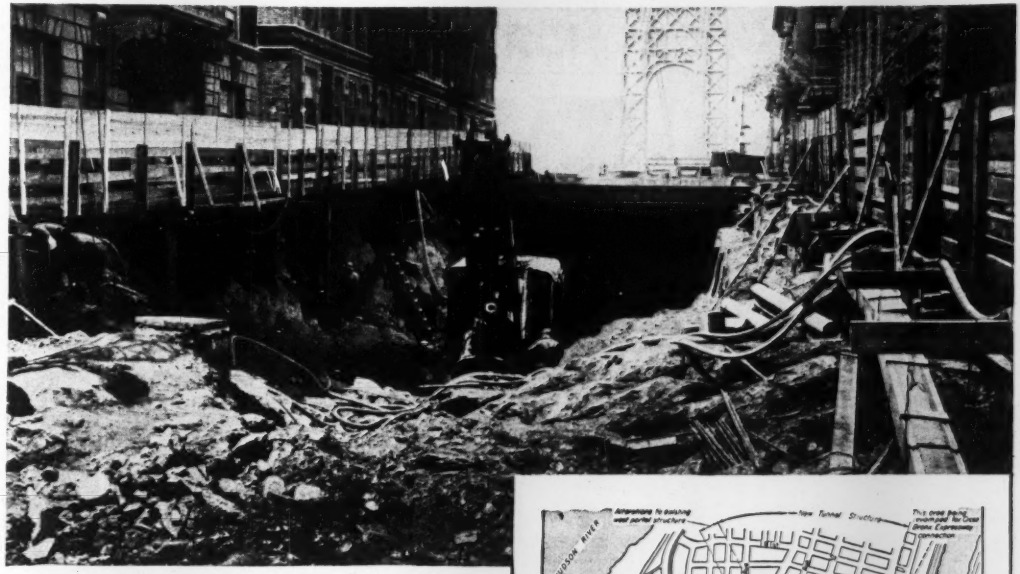
NEW PARTNER—A. Wilson Knecht has been admitted to the firm of Seelye, Stevenson & Value, civil, industrial and structural engineers, 101 Park Ave., N. Y. City. The firm name is now Seelye, Stevenson, Value & Knecht. Mr. Knecht is a Stevens Institute graduate, 1928, and has been closely identified with the design and construction of laboratories, boiler plants and manufacturing facilities, latterly with Walter Kidde Constructors, Inc.

William F. Callahan, commissioner of public works for Massachusetts, in the last two years has built more roads than were constructed in the Bay state during the previous 15 years, and it is expected that in the next two he probably will break the record for the last generation. The highways all will have potential value from a military and defense standpoint.

Honors

Harry L. Smith has been presented with a diamond ring, by his coworkers in appreciation of his more than 41 years service with New Hampshire highways. Latterly he has been division right-of-way engineer.

William Allan Mather, President of the Canadian Pacific Railway, and an engineer graduate of McGill University, is one of three Canadian engineers given honorary membership in the Engineering Institute of Canada.



VIEW WEST toward George Washington Bridge shows close quarters in which blasting operations took place.

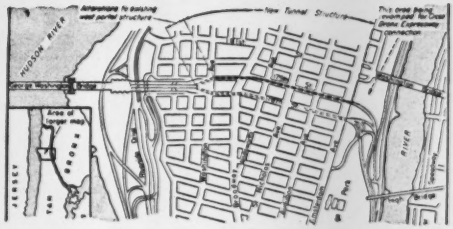
Tricky tunneling in tight quarters

ANOTHER JOB FOR DU PONT EXPLOSIVES

Delicate curb-to-curb blasting beneath busy city streets calls for dependable performance. That's why Poirier and McLane Corporation, New York, general contractors for this Port of New York Authority project, again selected Du Pont Explosives to complete excavation work.

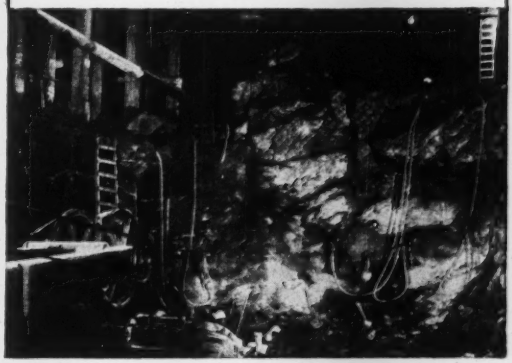
The job was not without difficulties. Confined space —only 60 feet between building lines, extensive underpinning of poorly founded apartment houses and badly folded, seamy Manhattan schist ("the worst kind," in the opinion of men on the job) made the going rough. In addition, it was necessary to line-drill on 3-inch centers along each side to assure clean breakage. It proved another job where always dependable Du Pont explosives enabled engineers to handle the operation smoothly and without a hitch.

Whenever you are planning a job that requires blasting . . . big job or little . . . routine or tricky . . . be sure to consult your Du Pont Explosives representative. He will gladly recommend explosives and supplies most suitable, most dependable and most economical for your job. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.



MAP OF BRIDGE approach gives idea of complicated blasting necessary through crowded residential area.

ROCK FACE of typical cut (below) averaged 30′ depth; 2200′ from west to east across upper Manhattan.



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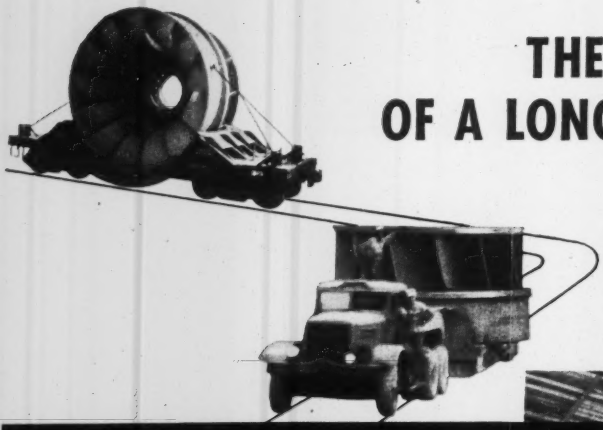
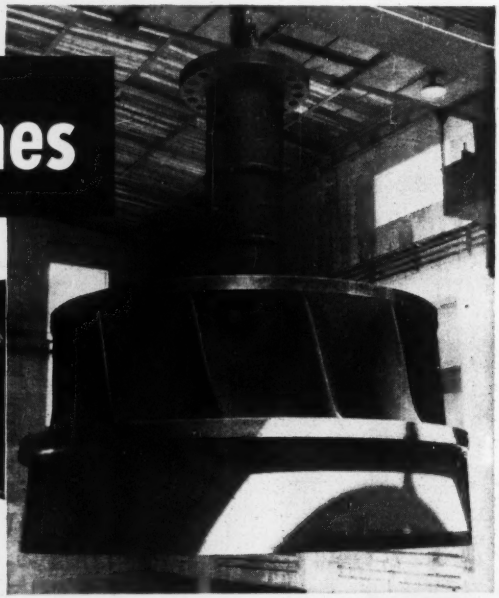
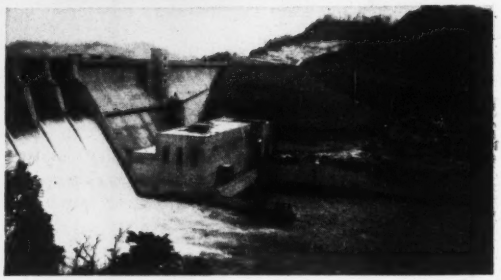
THE END OF A LONG JOURNEY— THE START OF A NEW JOB—

AT CENTER HILL NO. 1



Baldwin Turbines





Cradled in a specially designed railroad car . . . trucked on a mammoth trailer—this 170.5 inch, 63 ton Baldwin Turbine Runner came a long way before it was finally lowered into its working position at Center Hill Project, Tennessee. It is one of three Baldwin runners installed. Nominal rating of each is 62,500 H. P. Total generating capacity is 135,000 kw. Operating heads are, Maximum: 207′; Average: 160′; Minimum with full drawdown: 131′. Center Hill is one of 12 projects authorized for construction in the Cumberland River Basin, under direction of the Nashville District, Corps of Engineers, U. S. Army.

• • • •

Baldwin equipment, reinforced with a century of sound, practical engineering experience, has helped to develop some of the world's largest hydro-electric projects. Baldwin turbines cover the entire range from small, fractional horsepower water motors up to the largest units that can be shipped. Units for any head, from highest to lowest, can be provided. And the line includes impulse, propeller, Francis and Kaplan (adjustable blade) types, to suit every requirement.

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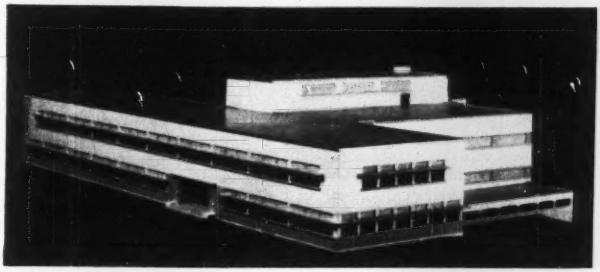
EDUCATION, RESEARCH



UNIQUE—Bids have been received for construction of a building, like this model, to house the Division of Building Research of Canada's National Research Council. It is believed to be the first building ever to be designed specifically to serve as a building research station. J. C. Meadowcraft, Montreal, is the architect and J. P. Keith and Associates, Montreal, are the mechanical engineers. The Division of Building Research was set up in 1947 and under the directorship of Robert F. Legget, has become a leading force in Canada's building industry.

One Davis succeeds another as president of Stevens

Jess Harrison Davis, 44, president of Clarkson College of Technology, Potsdam, N. Y., has been elected to succeed Harvey Nathaniel Davis, 70, for 23 years president of Stevens Institute of Technology, Hoboken, N. J. He will take office next Sept. 1.

The new president was graduated from Ohio State with a degree in science in 1928. He has had industrial experience with a number of important companies. He went to Clarkson in 1929 and became a full professor in 1940, dean in 1946, and president in 1948.

Dr. Harvey Davis served as head of Stevens for 23 years.

Faculty Notes

John A. Damm, assistant dean of Stevens Institute of Technology since 1946, has resigned to go with the General Electric Co. His successor is Nicholas J. Rose, assistant professor in the department of mathematics.

OLD AND NEW DEANS—Harry P. Hammond, left, dean of the School of Engineering at the Pennsylvania State College, will retire with emeritus rank on Sept. 1, and will be succeeded by Eric A. Walker, right. Dean Hammond succeeded the late Robert L. Sackett in 1937, while Dr. Walker went to Penn State in 1945 from Harvard Underwater Sound Laboratory. For the last year he has been on leave, acting as executive secretary of the Research and Development Board of the Department of Defense. Enrollment in the school of engineering has passed the 2,500-mark.

Prof. W. H. Allison is chairman of the civil engineering department at Clarkson College of Technology, Potsdam, N. Y.

Ross J. Martin is associate director of the engineering experiment station, University of Illinois.

Columbia—James K. Finch, who directed the school of engineering at Columbia University for 9 years and retired last June, has been accorded emeritus status by the trustees.

Asphalt research center—Sponsored by more than a score of prominent business corporations, a national asphalt research center has been established at Philadelphia, Pa., by the Frankling Institute Laboratories for Research and Development. It will serve the asphalt industry in the United States.

Faulty combustion said to cause L. A. smog

Incomplete combustion of nearly 50,000 tons of fuels and rubbish is believed to be the principal cause of smog in Los Angeles County.

Findings by the Stanford Research Institute on completion of a year-long survey show that burning of fuel and rubbish emits to the air each day at least 2,280 tons of chemicals which, by reaction and combination in the atmosphere, cause smog.

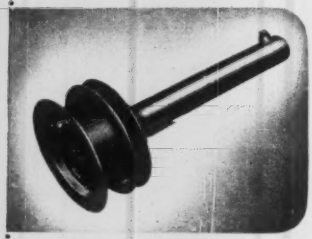
The report, sponsored by Western Oil and Gas Assn. says that of the total materials put into the air each day, 60% come from activities of the general public, such as driving cars and buses, burning trash, and heating homes and buildings. All industries in Los Angeles county account for the remaining 40%.

Almost two-thirds of the chemicals entering the air are organic in nature and 76% of these chemicals are produced by activities of the general public. The biggest source is household burning of trash which sends 550 tons of organic materials into the air every 24 hours.

Exhaust fumes from automobiles, buses and trucks contribute another 350 tons of organic substances. The organic material in automobile exhausts consists of unburned and partially burned gasoline, the Institute said.

In addition to organic chemicals, Institute scientists said other principal effluents to the Los Angeles atmosphere from combustion processes and evaporation include aldehydes, ammonia, nitrogen oxides, sulfur oxides, acids and solids.

2 ways to make crane operations pay more



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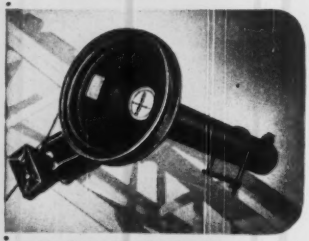

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MEETINGS

John M. Hepler, director of the Michigan State Department of Health, has been elected president of the Michigan Engineering Society.

Vincent T. MacLary was elected president of the Engineers Club of Western North Carolina. He succeeds Lawrence C. Merchant of Asheville. Other officers: W. W. Dodge, Jr., of Asheville, vice-president; Early G. Lee of Asheville, treasurer; and Wells Shoemaker of Enka, secretary. A. B. Goodman of Asheville and H. F. Finck of Ecusta were named new directors.

Dennis H. Norman, of Halifax, was elected president of the Nova Scotia Road Builders Association; R. S. Parsons and M. H. McManus, vice-presidents; J. G. Comeau, secretary-treasurer; W. P. Bickle, H. H. Latimer, Carl Hudson, G. C. Hault, R. F. McAlpine, D. R. Mackay, additional members of the executive committee.

Representatives of the United States Air Forces, the Office, Chief of Engineers, and Division Engineer offices throughout the county attended a recent training course at the Waterways Experiment Station, Vicksburg, Miss. The course pertained to the design of flexible pavements for military airfields. The techniques studied are based on developmental work accomplished by the Waterways Experiment Station over the last several years.

Bryant Mather, chief of the Special Investigations Branch of the Concrete Research Division, Waterways Experiment Station, Corps of Engineers, Jackson, Miss., was elected secretary of Committee C-9 on Concrete and Concrete Aggregates of the American Society for Testing Materials at its recent meeting in Cincinnati, Ohio. Mr. Mather succeeds Stanton Walker, engineering director of the National Sand and Gravel Association and the National Ready Mixed Concrete Association of Washington, D. C.

Robert W. Austin, Albany, hydraulic engineer for the Public Service Commission, was elected chairman of the New York Section of the American Water Works Association at its Spring meeting. Thomas Tylsley, superintendent of the municipal waterworks at Watertown, and Arthur Rowley, Lynbrook, of the Long Island Water Corporation, were named trustees.

The Construction Association of Halifax, N. S., has elected E. C. O'Leary president; G. M. Hagen and E. J. Gillis, vice-presidents; G. W. Miller, secretary-treasurer. Named section chairmen were: Gerald Foley for general contractors; F. Reardon, for painters; R. H. Connor, for tile setters; L. J. Kaye, sheet metal and foundry work; M. Donohue for roofing; L. R. Jackson, for plasterers; C. C. MacDonald, plumbers; W. Carter, for electricians; H. B. Russell, for supplies. C. R. Roper, immediate past president, is chairman for arbitration.

The officers of the Water and Sewage Works Manufacturers Association are: Everett M. Jones, president; Carl N. Brown, vice-president; Hubert F. O'Brien, treasurer; John G. Stewart, manager; and Dorothy E. Dimmers, secretary.

M. F. Henderson, city manager of Bozeman, Mont., was elected president of the Montana section, American Water Works association, at the recent annual convention. He succeeds Harry McCann of Missoula. Other officers elected were Arthur Johnson of Kalispell, vice-president; John B. Hazen of Butte, national director, and John Dennis of Laurel and Sam Ward of Billings, trustees. A. W. Clarkson of Helena was reelected secretary-treasurer. J. R. Cortes of Livingston received the national association's Warren Fuller award for outstanding work in the water works field.

CALENDAR

New England and New York Sewage Works Associations, spring meeting, Hotel Kimball, Springfield, Mass., June 7-8.

President's Highway Safety Conference, Washington, D. C., week of June 10.

American Society of Civil Engineers, summer convention, Brown Hotel, Louisville, Ky., June 13-15.

National Society of Professional Engineers, annual meeting, Nicollet Hotel, Minneapolis, Minn., June 13-16.

National Society of Professional Engineers, annual convention, Nicollet Hotel, Minneapolis, Minn., June 14.

American Congress on Surveying and Mapping, annual meeting, Hotel Shoreham, Washington, D. C., June 18-20.

American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 18-22.

Ohio Sewage and Industrial Wastes Treatment Conference, Neil House, Columbus, Ohio, June 20-22.

Western Association of State Highway Officials, Fairmont Hotel, San Francisco, Calif., June 25-28.

The American Society for Engineering Education, Michigan State College, East Lansing, Mich. June 25-29.

OBITUARY

Richard E. Sperry, 65, a retired civil engineer, died May 9 at Princeton, N. J. He was graduated from Harvard in 1906. He served as a construction chief with the U. S. Hoffman Machinery Co., and Bartlett-Hayward Co., both of Baltimore, Md., before going to Princeton in 1946.

Edgar A. Thumlert, 57, vice-president of the Fairfield Engineering Co., Marion, Ohio, died May 7 at Cleveland.

Paul Schultze, 86, former city engineer of Utica, N. Y., Oneida County highway superintendent and deputy state commissioner of highways for 34 years, died May 11 in Albany.

F. Franklin Hunt, 54, engineer and superintendent of public works of Endicott, N. Y., died May 11. He designed and supervised construction of most public works projects in Endicott for more than 30 years. He was a graduate of R.P.I.

Dwight D. Long, 59, manager of the general engineering department of the Metropolitan Utilities Dist., Omaha, Neb., died May 15.

John A. Miller, 82, an expert in building library installations, died at Miami, Fla., May 11. He had done work for the Library of Congress, the N. Y. City public library, and the Yale University library.

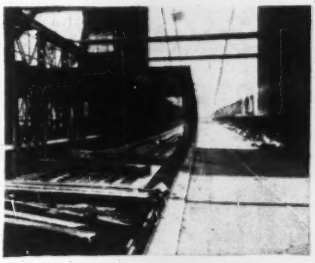
James N. McKelvey, 86, who served as building commissioner of St. Louis from May, 1911 to May, 1913, and then as Director of the St. Louis Department of Public Safety until 1925, died May 9 at Ladue, Mo. He organized the McKelvey Construction Co. in 1892, serving as its president until his appointment as building commissioner. After leaving the city's service he headed the McKelvey-Felix Construction Co.

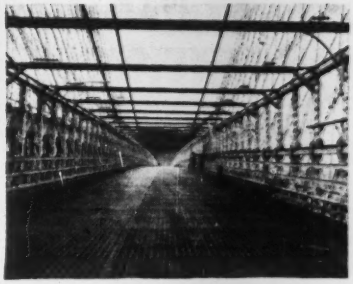
Luther E. Phillips, 56, an engineer at Dahlgren, Va., Naval Proving Grounds, died May 12. He was employed there more than 30 years. During World War II he received a special citation.

Thomas C. Taylor, 62, Lancaster, Ohio, former assistant Fairfield County engineer, died May 14.

Ralph E. House, 56, former Medina County engineer for seven years, Medina, Ohio, April 30. He recently was with the state highway department.

(Continued on page 56)





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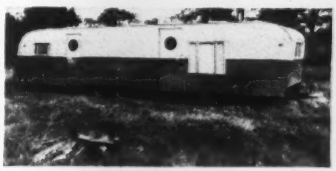

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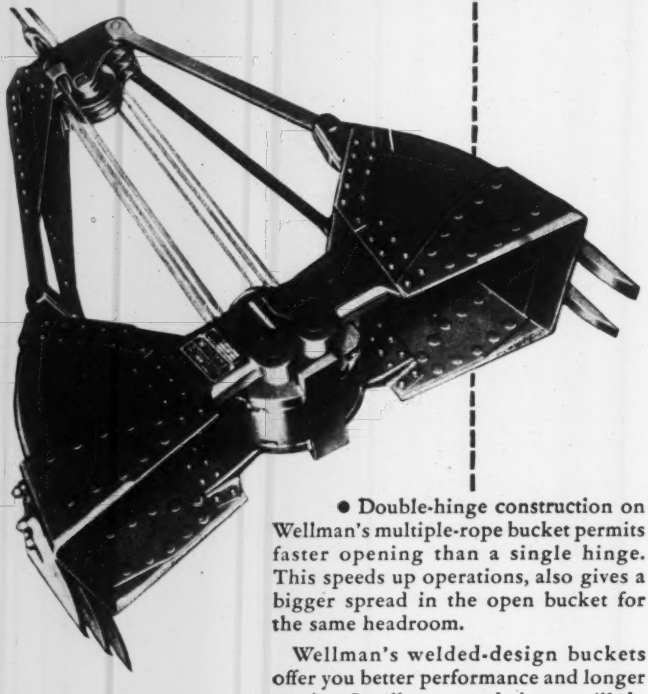

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George L. Eagleton, 78, former Youngstown and Mahoning County engineer, died May 1, in Youngstown, Ohio.

Roman Havlicek, 70, Toledo, Ohio, engineer and architect, employed by the Ohio Highway Department since 1943, specializing in bridges, died April 29. He formerly had his own office in Toledo, and worked in Englewood, N. J., from 1925 to 1935.

Charles W. Winkle, 81, retired superintendent of the Indianapolis Water Co., died May 14. He retired in 1939 as superintendent of the distribution department, after 46 years with the firm.

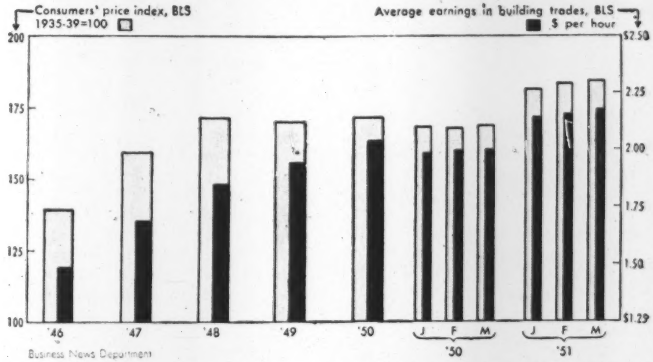
Clarke K. Harvey, 74, died at Pittsburgh, Pa., May 2. He was a civil engineer graduate of Ohio State University, 1906, and shortly thereafter went to Pittsburgh. He was with the U. S. Navy Bureau of Yards and Docks from 1919 to 1922. In 1924 he was put in charge of construction of the 6th, 7th and 9th street bridges over the Allegheny River in Pittsburgh. He became head of the Bureau of Design in 1945, and when he retired he became engineering consultant for the Allegheny Conference on Community Development. He was active in the Pittsburgh chapter of the Pennsylvania society of Professional Engineers.

Joseph Spatola, 83, who directed construction of the foundation for the Statue of Liberty, N. Y. Harbor, died in San Jose, Calif., May 16.

Newton R. Ridley, 45, an assistant engineer for California's state division of highways, died in San Jose May 10. He was graduated by Stanford University as a civil engineer in 1935.

New code for Providence—Civil engineers play a prominent part in the administration and enforcement of a new building code submitted for approval at Providence, R. I., after nine years of preparation. It supplants a code last revised 17 years ago. It is of the performance-standards type, the first of its kind in the state. Contractors are assured, under the new code, that building plans will be completely processed under one roof in a single department of building inspection instead of in four scattered city agencies as formerly. There is a 12-member revision board, and there will be a board of survey to hear appeals.

LABOR



THREE STEPS UP—Rising together over the first quarter of this year were the Bureau of Labor Statistics Consumer Price Index and average earnings in the building trades. The cost index has gone up 1.6%, wages 1.7%. Compared with 1948, wage increases have outrun consumer cost increases: Wages for building trades are up 17.5% while consumer costs have risen only 7.4%.

Wage ceiling breakthrough due

The administration's inability—or unwillingness—to hold the line against wage increases will be formalized very shortly. New policies are now being drafted by the Wage Stabilization Board to take care of a situation where the government wants to bend over backward to be "just" in considering approval of wage increases promised to workers by their employers.

The tip-off—long anticipated by realistic observers—came officially when WSB approved a 9-cent hourly wage increase for 73,000 employees of big meat-packing companies. Admitting that this increase (6 cents over the 10% ceiling) could not be justified under any existing wage regulation, WSB chairman George W. Taylor said it was "a first step" toward a new wage policy.

• **Changes**—Just what other steps would be, the board wasn't prepared to say officially. But observers line it up about this way:

1. The 10% ceiling (above Jan. 15, 1950) will certainly be lifted.

2. WSB will approve—outside the ceiling limitation—so-called annual improvement increases based on increased productivity, such as predominate in the automobile industry.

3. WSB will adopt a common rule for cost-of-living wage escalators, other deferred increases and increases made under wage reopening provisions of labor contracts.

• **Promise for construction**—This promise of more liberal action by WSB would indicate a good chance for the mass of construction labor contracts that include numerous provisions for wage increases beyond the ceiling but await approval by WSB.

Most labor troubles being reported now center on wage problems (ENR May 24, p. 76) and most of them can't even be classed as disputes, since both sides have agreed to increases in various forms—awaiting only government sanction before putting them into effect.

Here is a sample:

Toledo, Ohio, building trades workers and employers petitioned WSB for sanction of wage rate increases of nearly 5% above the ceiling, despite a 5% boost received in February. Affecting nearly 5,000 workers, the new rate would bring bricklayers, for example, up to $3 an hour.

Some 350 carpenters in Sioux Falls, S. D., struck in an attempt to get raises that would put them 3½ cents above the ceiling.

Ironworkers at Indianapolis stopped work while their union sought a 9½-cent addition to the 15-cent-an-hour cost of living raise they got May 1. And plumbers and steamfitters at Fort Wayne, Ind., returned to work, after their employers agreed to a 5-cent an hour raise—if WSB approves.

• **Special board**—As during World War II, wage controls in the construction industry will be administered by a special tripartite panel. WSB has set up a "Construction Industry Stabilization Commission," composed of public, industry and labor representatives.

Unlike WWII, however, the new

(*Continued on page 58*)

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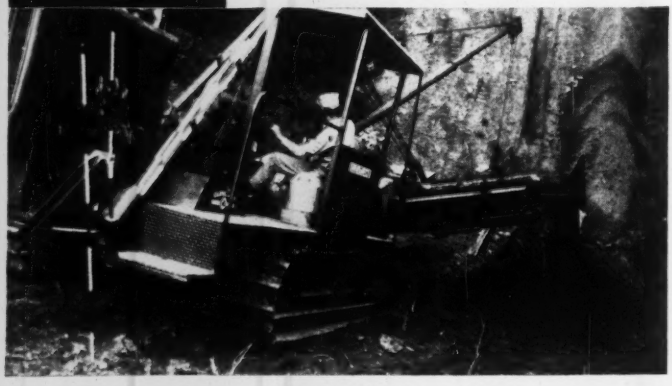

Labor . . .

commission will be a direct arm of WSB. In the war period, a similar board was domiciled in the Labor department.

This commission will be serviced by the Labor department's staff handling Bacon-Davis Act prevailing rates for government construction. WSB retains control over policies and also the right to review all decisions of the commission.

Secretary of Labor Maurice Tobin will continue to make wage determinations of prevailing wages under the Bacon-Davis act, but these determinations will be based only on construction rates that have the approval of WSB. That is the same way it was handled by former Labor Secretary Frances Perkins during World War II, by the way.

Labor briefs . . . .

• **Guilty**—Two members of the Youngstown, Ohio, structural ironworkers' union were found guilty of maliciously destroying property in a dispute at Lake Milton last summer. The two men were charged with throwing $1,200 worth of blueprints and equipment into the water, during the course of a squabble over hiring members of another union (a CIO affiliate) to work on a bridge construction job.

• **Strike ends**—A one-week strike that tied up all major construction in Billings, Mont., ended when a compromise agreement was accepted by common laborers and employers, granting general 10% wage increases to all union men.

• **Bacon-Davis**—WSB has instructed its staff to give consideration to the most recent Bacon-Davis wage determination, based on rates prevailing before the Jan. 25 freeze date, in handling applications for approval of higher rates in the construction industry. The instruction cleared up the case of a Utah contractor who wanted to pay plumbers the current Bacon-Davis rate but could not, since he was limited to the rate prevailing when he signed his contract.

• **Alcoholism**—A recently-completed survey by Yale University's Center of Alcoholic Studies puts construction and mining sixth among nine major divisions of industry in incidence of alcoholism among workers. Based on studies of 2,000 male alcoholics, the university found that the highest percentage of them (23%) were men in highly skilled labor trades.

CONSTRUCTION BUSINESS

Price order to bring little change

Despite the "breather" granted by the Office of Price Administration last week (an extension of the May 28 deadline to July 2), there was only this much clear about prices the construction industry will have to pay for materials and equipment:

There will be few, if any changes, after the new prices go into effect. Real effect of the pricing order will be to stabilize prices for a while—not lower them.

• **Compound confusion**—The extension of time for submitting newly-figured prices simply had to be granted to construction manufacturers, just as it had to be granted to manufacturers in many other lines.

Singly and in groups, the manufacturers made these points to OPS:

The amount of accounting work involved in the new pricing procedure is almost fantastic—particularly for manufacturers with thousands of individual products. It is just as fantastic for construction equipment manufacturers who may, in addition to several lines of machinery, also have to provide for optional parts and on occasion for equipment that is nearly "tailor made" for a particular customer.

The trouble is that OPS gave the manufacturers four basic methods of figuring new prices (ENR May 3, p. 23)—and within each of the four are a number of variants. And some of the questions that have come up aren't answered in CPR 30 (the pricing regulation) itself. Result: Each individual item must be computed in anything from four to 32 different ways before the manufacturer is sure he's selected the right basis for his prices.

For a manufacturer of a single standard product, that may be no insurmountable problem—but for building materials companies with thousands of items on their lists, and for many others with several lines and special conditions—it's a major one.

• **Do your best**—The official attitude of the Construction Industry Manufacturers' Association is typical.

CIMA protested officially to OPS about the shortness of time for filing the reports, but at the same time urged its members to comply with the order as far as possible, and mail in to OPS what forms had been completed by the May 28 deadline.

CIMA took no stand for or against the pricing move, and wouldn't hazard a guess as to results. Officials listed a number of intangibles that are puzzling manufacturers too:

Much of the equipment requires considerable engineering design and other factors. Will they be allowed? Some manufacturers of stationary equipment include the cost of transportation and field erection in selling costs. This poses the question: Is this part of the engineering costs, or what is it?

Washington made one point clear, however: Exempt from the pricing order are used machinery and rental equipment—they are still covered by the general ceiling price regulation which freezes prices at those prevailing between Dec. 19, 1950, and Jan. 25, 1951.

• **Other facets**—Other parts of the construction-supply industry were concerned. The advisory board of the Structural Clay Products Institute met in Washington last week to recommend a special ceiling price regulation for their industry.

They added that it was impossible for them to get their price reports done on time. Example cited: One Arkansas producer has been selling on a delivered price basis by zones, trucking material to the zones. He has 500 price reports to file, no accounting department to handle the job.

Lumber price drop-off follows heavy production

With production of lumber continuing at high levels, a drop in lumber prices began to appear throughout the United States last week, Engineering News-Record's 20-cities price reports show.

Indicated in reports a week ago (ENR May 24, p. 79), the softening in lumber prices is looked upon as the result of a combination of circumstances including: Heavy inventories now in dealers' hands; dealer caution in buying until effect of price and credit controls becomes clearer; evaporation of freight-car shortages; drop in housing starts; and high production at the sawmills.

As an indication of that high production, the National Lumber Manufacturers Association reported that for the week ending May 12, shipments were 1.8% below production, and new orders were 6.1% below. This was the third straight week, said NLMA, that production has outrun both shipments and new orders. And compared to the NLMA average corresponding week (1935-39) production was 80.1%

(*Continued on page 60*)

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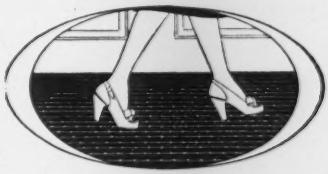

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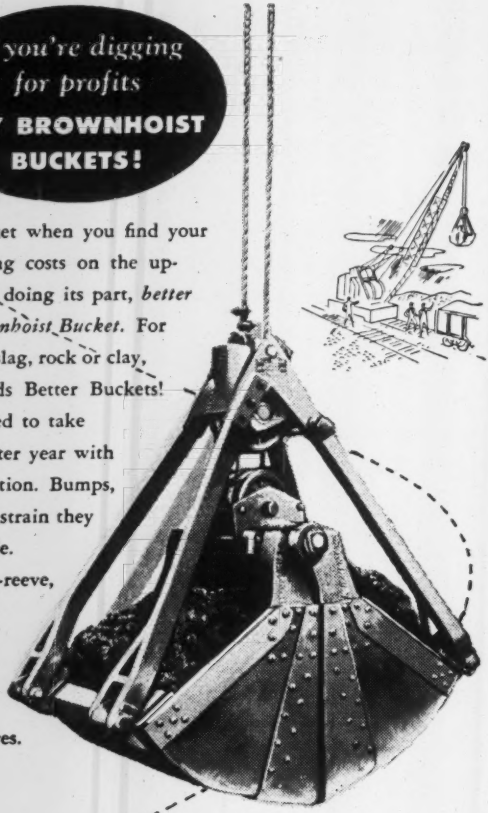

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Construction business . . .

higher for the May 12 week.

• **Prices go down**—Prices are reacting to the loosening in lumber supplies by moving downward or remaining unchanged, ENR's reporters found in their monthly check of the market. Some of the price drops were in Fir only, some in both Pine and Fir.

For example:

At **Baltimore**, prices of all sizes of fir (from 1 x 6 to 12 x 12) were down between $6.50 (for 1 x 6) to $14 (for 3 x 12). Pine 2 x 6 and 2 x 10 were down $5 per MFBM. Other sizes of pine showed either no change, or slight rises of between 50¢ and $1 per MFBM.

Boston reported definite drops in four sizes of Fir (2 x 4 to 2 x 10) of $5. In Pine, all sizes, excepting 2 x 10, showed a price range where the lower end represented a drop under previous reports. For example, Pine 2 x 4 quoted in May at $99 are now quoted at a range of $95-$99; Pine 2 x 6, quoted in May at $100, are now quoted at $98-$103.

At **Cincinnati** there were drops of from $1 to $7 per MFBM in all sizes of pine, ranging from a decline of $1 for 3 x 12, to $7 for 2 x 8. Five of the seven Fir classifications also showed drops, while one (3 x 12) went up by $13.50.

Cleveland showed all sizes of Pine declining in cost, from $1 to $2 per MFBM. No change was reported here in Fir prices.

Chicago yards said all classes of Pine had dropped from $5 to $8; and showed declines of from $5 to $6 in all sizes of Fir.

From **Detroit** came reports of drops in two sizes of pine (1 x 8 and 2 x 4) and no changes in others. No changes were noted in Fir prices.

Los Angeles reported a $2 per MFBM drop in the price of all Fir sizes.

St. Louis registered drops of between $5 and $12 in Pine, $2.75 and $5.25 in Fir.

Birmingham, Dallas, Denver, Minneapolis, San Francisco, Seattle and Kansas City, among others, reported no significant price changes for lumber.

No plywood shortage seen

Some 65 Douglas Fir plywood mills produce more than two-thirds of the total U. S. supply. These mills, according to Harry Shrader, Jr., managing director of the Douglas Fir Plywood Association, are now running at the record rate of 55,000,000 sq ft a week. That output, Shrader said, is sufficient to assure civilian users of more plywood than in 1949.

Construction business . . .

UNIT PRICES BID BY CONTRACTORS

Road work for Hall County, Ga.

The State Highway Department of Georgia, awarded the contract for road work in Hall County on April 20 to the low bidder, $158,513.68, which was 9% under the next to low bid and 25.5% below the highest.

Minimum wage scale is $0.75 an hour for all classes of labor. Rates in Atlanta area are: common labor, $1.05; semi-skilled, $1.25-$1.75; skilled, $2.00-$2.50.

Bidders were:

1 Lothridge Brothers, Gainesville, Ga. (Contract)	$158,513.68
2 Mose Gordon Lumber Co., Commerce, Ga.	173,867.76
4 E. H. Hines Constr. Co., Inc., Greenwood, S. C.	212,747.38

Items	Quantity	Unit prices 1	Unit prices 2
Clearing & grub	ls	$3,000	$3,500
Random clear & grub	A	8.70	50.00
Unclas excav & borrow incl ditches	cy	112,997	0.25
Excav for culvert & minor structur	cy	750	1.00
Overhaul on excav. sta. yd		258,628	0.005
Concrete pipe, Cl B, side ditch, 15"	lf	680	1.80
18"	lf	120	2.25
Std strength reinf conc pipe cent dit, 15"	lf	916	2.30
18"	lf	1,264	2.75
30"	lf	69	5.00
Sdt str reinf conc pipe c.d. & stub, 24"	lf	263	4.00
Remove wood box culvert	lf	53	1.00
Culvert pipe removed c.d. or s.d	lf	351	0.50
Class A conc apron & well slab	cy	1.09	50.00
Bar reinf steel	lb	107	0.15
For FAP markers post	ea	2	10.00
Plates	ea	2	10.00
Arrows	ea	2	10.00
Subgrade treatment material	cy	25,371	0.38
Overhaul on subgrade treatment mat'l	Uy	166,359	0.035
Seeding slopes, shoulders & s.d.	sy	76,708	0.035
Loose sod riprap for cd	sy	116	0.65
Sod ditch checks	sy	2,288	0.75
Water for grass	Mgal	2.4	2.00
Fertilizer, 1st app	T	0.24	55.00
2nd application	lb	24	0.30
Plain sand-cement bag riprap	sy	50	4.50
For c.d. & well	sy	25.2	4.50
Selected mat'l backfill for culv founda	cy	43	2.50
Conc drop inlet st'd 1019 typ C with conc cover, 4' or less	ea	1	125.00
Addl depth for drop inlet typ C	lf	0.75	25.00
2 Weirs & conc cover H, 4' or less	ea	1	150.00
Addl depth for drop inlet typ B	lf	3	20.00
Remove: Conc pillars	cy	2.36	5.00
Rubble masonry pillars	cy	2.31	5.00
Comb conc & stone steps	cy	1.5	5.00
6" bit bound base for rr crossing	sy	43	1.85
Reflectorized grade crossing: Warning signs, type F	ea	2	40.00
Stop signs, type F	ea	2	40.00
Reflectorized cross buck signs, typ E	ea	2	40.00
Steel posts, flexbeam	lf	600	3.75
Or safety beam	lf	600	.....
Coarse aggr for soil bound macadam bast	T	16,960	3.10
Soil mortar for soil bound macadam bas	cy	8,555	0.50
Over on soil mort	Uy	38,982	0.04
Cutback asphalt prime	gal	30,667	0.19
Single surf trtm typ1	sy	83,454	0.18
Liquid seal	sy	83,454	0.12
Selected mat'l for shoulder constr	cy	6,129	0.38
Erect reflectorized end of pavement sign, furnish by gov't	ea	1	5.00
Ovrhl, select mat'l	Uy	27,964	0.035

Selected mat'l for shoulder constr	cy	6,129	0.38	0.50
Erect reflectorized end of pavement sign, furnish by gov't	ea	1	5.00	5.00
Ovrhl, select mat'l	Uy	27,964	0.035	0.04

Gilmore Street Bridge, Jacksonville, Fla.

A low bid of $1,179,668.94 was awarded the contract for the substructure of the Gilmore Street Bridge in Jacksonville, Fla., April 12 by the Florida State Road Department. It was 13% below the engineer's estimate and 4% below the next to low bid.

At the same time, the department rejected all bids on the superstructure and all combined bids on the bridge. Part of the Jacksonville Expressway, the structure will measure 3,667 feet between banks and include a double-lead bascule drawspan. It will rest on 2 abutments, 23 land piers and 13 river piers. (ENR 5/10/51, p. 26)

Wage rates in the Jacksonville area are: common labor, $1.00; cement finishers, $1.75; painters, $1.80; and ironworkers, $1.80-$2.15.

Bidders on the substructure were:

1 Diamond Construction Co., Wash., D. C. (Contract)	$1,179,688.94
2 Industrial Contracting Co., Minneapolis, Minn.	1,231,297.48
Engineer's estimate	1,360,000.00

Items	Quantity	Unit prices 1C	Unit prices 2
Treated structural timber (12 lb treatment)	Mbfm	52,522	$480.00
Concrete	cy	7,719.8	40.00
Pile encasement, conc (round)	lf	4,878	11.80
Conc seal	cy	5,246.5	55.00
Reinf steel	lb	907,089	0.12
Struct steel	lb	28,176	0.30
Treat timber poling (22lb treatment)	lf	20,916	3.00
Metal shoes for piles	ea	332	15.00
Steel pil (14 BP 73)	lf	35,326	8.00
Unloaded test piling (14 BP 73)	lf	1,044	13.00
Unloaded test piling (timber)	lf	390	7.70
Steel sheet piling	lb	73,660	0.10
Punching, tim pile	ea	332	24.00

Items	Quantity	Unit prices 1C	Unit prices 2
Treated structural timber (12 lb treatment)	Mbfm	52,522	$480.00	$400.00
Concrete	cy	7,719.8	40.00	65.00
Pile encasement, conc (round)	lf	4,878	11.80	10.00
Conc seal	cy	5,246.5	55.00	48.00
Reinf steel	lb	907,089	0.12	0.12
Struct steel	lb	28,176	0.30	0.50
Treat timber poling (22lb treatment)	lf	20,916	3.00	3.00
Metal shoes for piles	ea	332	15.00	4.00
Steel pil (14 BP 73)	lf	35,326	8.00	4.50
Unloaded test piling (14 BP 73)	lf	1,044	13.00	20.00
Unloaded test piling (timber)	lf	390	7.70	6.00
Steel sheet piling	lb	73,660	0.10	0.30
Punching, tim pile	ea	332	24.00	50.00

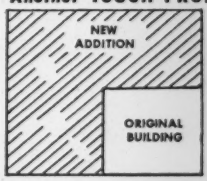
Bidders on the superstructure were:

1 Industrial Contracting Co., Minneapolis	$3,976,534.48
2 Louis Garavaglia, Centerline, Mich.	4,135,784.17
Engineer's estimate	3,242,000.00

Items	Quantity	Unit prices 1	Unit prices 2
Concrete (Br deck, safety curb, center mall)	cy	5,530.9	100.00
(Piers 22 & 23 above elev +17)	cy	1,822.9	60.00
(Counterweight)	cy	378.2	50.00
Conc handrail	lf	7,037.7	10.00
Reinf steel	lb	1,183,614	0.12
Struct steel: Girder & beam spans, carbon	lb	4,587,842	0.198
Silicon	lb	822,126	0.25
Fixed truss spans, carbon	lb	788,734	0.34
Silicon	lb	2,179,948	0.37
Bascule truss carbon	lb	1,108,884	0.34
Silicon	lb	270,560	0.38
Machinery & casting	ls	.....	197,000
Steel bridge floor (open)	sf	9,557	5.00
(Filled)	sf	1,213	4.50
Control house	ls	.....	10,000
Electrical equipment	ls	.....	112,000
Spiral shear connect	lb	28,314	0.60
Roadway lighting	ls	.....	25,000

Items	Quantity	Unit prices 1	Unit prices 2
Concrete (Br deck, safety curb, center mall)	cy	5,530.9	100.00	90.00
(Piers 22 & 23 above elev +17)	cy	1,822.9	60.00	60.00
(Counterweight)	cy	378.2	50.00	100.00
Conc handrail	lf	7,037.7	10.00	10.50
Reinf steel	lb	1,183,614	0.12	0.12
Struct steel: Girder & beam spans, carbon	lb	4,587,842	0.198	0.19
Silicon	lb	822,126	0.25	0.24
Fixed truss spans, carbon	lb	788,734	0.34	0.36
Silicon	lb	2,179,948	0.37	0.40
Bascule truss carbon	lb	1,108,884	0.34	0.37
Silicon	lb	270,560	0.38	0.40
Machinery & casting	ls	.....	197,000	260,000
Steel bridge floor (open)	sf	9,557	5.00	5.00
(Filled)	sf	1,213	4.50	5.50
Control house	ls	.....	10,000	40,000
Electrical equipment	ls	.....	112,000	130,000
Spiral shear connect	lb	28,314	0.60	0.60
Roadway lighting	ls	.....	25,000	30,000

Another TOUGH PROBLEM Licked . . . with SMOOTH CEILINGS SYSTEM



Once again the S.C.S. of flat-slab construction proves its flexibility . . . its adaptability to the toughest building problems. The new addition to the Union Planter's Bank Building at Memphis, Tennessee, had to be built *around* the old building . . . had to meet modern building requirements of space, lighting and strength while preserving and extending the lines of the original structure. The SMOOTH CEILINGS SYSTEM'S special steel grillages were chosen because of their advantages of versatility, strength and building economy demonstrated in school, hospital, office and industrial buildings throughout the country. Beams, column caps, drop panels eliminated with these special steel grillages!

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MINNEAPOLIS, MINNESOTA

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—BUILDINGS

Conn., Norwalk—HIGH SCHOOL—B.A. 6/6—Bd. Educ., City Hall, Junior High School, Strawberry Hill Ave. $800,000. CD 3/23.

CONTRACTS—BUILDINGS

Gil Wyner Co., Inc., 32 Newland St., Malden, Mass. Contract Awarded. $850,000. new PARTS DEPOT, NATICK, MASS. Ford Motor Co., 856 Penobscot Bldg., Detroit, Mich.

▲ **Thos. Worcester, Inc.,** 84 State St., Boston, Mass. Contract Awarded. Est. $2,000,000. radar PLANT, Lake Cochituate, NATICK, MASS. Laboratory for Electronics, Inc., 11 Leon St., Roxbury, Mass. CD 4/4.

Merrill & Usher Co., 5 Arctic St., Worcester, Mass. Separate Contracts. Total est. $750,000. WAREHOUSE and fabricating PLANT, Prescott St., steel contract to Truscon Steel Co., 307 Dorchester St., South Boston, Mass., WORCESTER, MASS. CD 4/2.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New Jersey—B.A. 6/14—Div. Water Policy & Supply, 520 E. State St., Trenton, Prallsville Control Structures, on Delaware and Raritan Canal Feeder in Stockton Boro, Delaware Twp., Hunterdon Co.; incl. rein.con. regulating gate structure, retaining walls, spillway and sluice gate structure, etc. Plans deposit $10. adv. ENR 5/24.

BIDS ASKED—BUILDINGS

† **N. Y., Buffalo**—CUSTOM HOUSE—B.A. 6/5—Pub. Bldgs. Service, 250 Hudson St., New York, Zone 13, misc. repairs to U. S. Custom House.

Pa., Carlisle—HOUSING—B.A. 6/8—Dpt. Army, 121 N. Broad St., Phila.; construct, manage, finance housing, $800,000. Walter K. Durham, 1606 Latimer St., Phila.; archt. CD 5/10.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Mohawk Paving Co., Inc.,** and **Serafini Constr. Co., Inc.,** Conklin Rd., Binghamton, N. Y. Low Bidder, $791,863, grading, partial paving 0.62 mi. sect., Lake Front Arterial Route, Ontario Co.; **Lane Constr. Corp,** 37 Colony St, Meriden, Conn., $3,310,064, paving, grading 9.83 mi. New York State Thruway, Ontario and Monroe Counties; **Balkan Demolition Co., Inc.,** 61 Marcy Ave., Brooklyn 11, N. Y., $116,000, demolition bldgs., 1.23 mi. sect. of Cross Bronx Expressway for Bronx River Parkway, easterly to Castle Hill Ave., Bronx Co., NEW YORK. Bureau Contracts & Accounts, Albany, N. Y. Bids May 16. CD 5/1.

▲† **American Dredging Co.,** 12 S. 12 St., Phila., Pa., Low Bidder, $993,909, dredging Marcus Hook Anchorage, Delaware Co., Inv. No. CIVENG 35-109-51-67. PENNSYLVANIA. U. S. Eng., 121 N. Broad St., Phila. 1, Pa. Bids May 9. CD 4/25.

E. D. Plummer & Sons, Chambersburg, Pa. Low Bidder, $428,581, grading, drainage, vertical curves surf. 2.971 mi. State Rte. 64 from Hagerstown toward Chewsville. Contr. W 405-615, Washington Co., MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids May 15. CD 4/30.

LOW BIDDERS—BUILDINGS

▲ **Davis Constr. Co.,** 320 W. 24 St., Baltimore, Md. Low Bidder, $1,848,000. Booker T. Washington Junior High SCHOOL, alterations, addn., BALTIMORE, MD. City Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids May 16. CD 5/4.

John K. Ruff, Inc., 100 W. 22 St., Baltimore, Md. Low Bidder, $719,300. 1 story, 76x293 ft., 39x64 ft., 64x162 ft., brick, concrete, steel Lutherville Elementary SCHOOL, TOWSON, MD. Baltimore Co., Aigburth Rd., Towson, Md. Bids May 9. CD 4/19.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Dravo Corp.,** Neville Island, Pittsburgh, Pa., Contract Awarded, $7,967,667, land lock chamber at Lock 2 on the Monongahela River, Braddock, Allegheny Co. Serial No. CIVENG 36-058-51-75, PENNSYLVANIA. U. S. Eng., 924 New Federal Bldg., Pittsburgh, 19, Pa. CD 4/19, under LB.

CONTRACTS—BUILDINGS

▲ **H. K. Ferguson Co.,** 19 Rector St., New York 6, N. Y. Design and Construct, $6,000,000 1 story mfg. PLANT to produce electronic tubes, BATH, N. Y. Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, Pa.

▲ **H. K. Ferguson Co.,** 19 Rector St., New York 6, N. Y., Design and Construct $3,000,000 1 story mfg. PLANT to produce electronic tubes on 100 acre tract HORSEHEADS, N. Y. Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, Pa.

▲ **Gens-Jarboe, Inc.,** 101 Park Ave., New York 17, N. Y. Contract Awarded. Approx. $1,300,000. Roosevelt Hospital Lower Memorial CLINIC addn., NEW YORK, N. Y. Roosevelt Hospital, Gayer Dominick, pres. and Louis L. Dalefield, 428 W. 59 St., New York, N. Y. York & Sawyer, 101 Park Ave., New York 17, N. Y., archts. CD 3/6.

▲ **J. Alexander Stein,** 103 E. 125 St., New York 35, N. Y. Contract Awarded, $1,521,000. Senior HIGH SCHOOL, Port Washington Blvd., PORT WASHINGTON, N. Y. Bd. Educ., Union Free School Dist. 4, Port Washington, N. Y., Bids Mar. 26. CD 4/10, under LB.

Short Hills Village, c/o McMurray & Chirgotis, archts., 968 Stuyvesant Ave., Union, N. J. Owner Builds. Approx. $800,000. garden APARTMENT on 9-acre site in Short Hills Ave., SPRINGFIELD, N. J.

† **Irwin & Leighton,** 1505 Race St., Phila., Pa. Contract Awarded. $500,000. annealing FURNACE bldg., BEATRATON bldg., etc., EDDYSTONE, PA. Dpt. Army, 121 N. Broad St., Phila., Pa. Jack S. Steele Co., 1417 Sansom St., Phila., Pa., engr. and archt. Bids Apr. 27.

George M. Seamlan Co., 5145 Liberty Ave., Pittsburgh, Pa. Contract Awarded. Approx. $800,000. 3 story, 50x168 ft., brick, tile, steel CHEMISTRY LABORATORY BLDG. No. 6, HARMARVILLE, PA. Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa., CD 4/22/48.

Glen Arm Bldg. Co., 5 N. Guilford Ave., Baltimore, Md. Owner Builds. $750,000. 96 RESIDENCES, 4700 block Glenarm Ave., 5900 block Grace Ave., 4500, 4600 and 4700 blocks Hillwig Ave., 5900 block Plainfield Ave., BALTIMORE, MD. Hal A. Miller & Assoc., 2118 Maryland Ave., Baltimore, Md., archts. Geo. W. Stephens & Assoc., 5 McCurdy Ave., Towson, Md., engrs.

Choptank Constr. Co., Cambridge, Md. Contract Awarded. $598,137. brick, steel, concrete, cinder block Consolidated High SCHOOL, CAMBRIDGE, MD. Dorchester Co., Bd. Educ., Cambridge, Mass. CD 4/20. under L.B.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Fla., Jacksonville**—FUEL STORAGE—B.A. 6/7—Dpt. Navy, P. O. Box 365, Naval Air Base, Charleston, S. C., jet aviation fuel storage equip. at Jacksonville Naval Air Station, NOY 26798, Spec. 28814. CD 12/26.

† **N. C., Camp Lejeune**—STEAM DISTRIBUTING SYSTEM—B.A. 6/11—Pub. Wks. Office, Bldg. 1005, Marine Barracks, exten. steam distr. sys. of Hadnot Point area, Spec. 28755. Plans deposit $10.

† **Louisiana**—B.A. 6/12—U. S. Eng., P. O. Box 60, Vicksburg, Miss. approx. 35,000 cu. yd. earthwork approx. 37 stations levee dressing right bank of Ouachita River, Caldwell Parish, CIVENG 22-052-51-182. CD 6/26/46.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

BIDS ASKED—BUILDINGS

▲ **Va., Roanoke**—HOUSING—B.A. 6/5—Roanoke Redevelopment & Housing Auth., 401 Luck Ave., 300 housing units. $2,500,000. Plans deposit $75. CD 4/20.

Ala., Auburn—DORMITORY—B.A. 6/12—Alabama Polytechnic Institute, women's dormitory, Warren, Knight & Davis, Protective Life Bldg., Birmingham, archts. Bids 1/30 rejected. C 3/8, under LB.

Ala., Phenix City—HOUSING—B.A. 6/14—Phenix City Housing Auth., 76 housing units. $750,000. Plans deposit $50. L. D. Raines and W. D. Talley, 2443 Wynnton Rd., Columbus, archts.

▲ **Va., Hopewell**—FACTORY—Bids Asked—Continental Can Co., Hopewell, factory expansion. $7,350,846.

LOW BIDDERS—HEAVY CONSTRUCTION

R. B. Tyler Co., 1316 High St., Jackson, Miss., and **Dunn Constr. Co.,** 1121 W. Capitol St., Jackson, Miss. Low Bidder, $293,496, Parts 1, 2, and 3, street paving, Proj. 132-B; **Delta Paving Co.,** 4100 Northlawn Dr., Jackson, Miss., $90,703, street paving, Proj. 132-B Part 4, JACKSON, MISS. City, Jackson, Miss. Bids May 14. CD 4/30.

LOW BIDDERS—BUILDINGS

City, Norton, Va., cancelled bids to have been opened June 5, HIGH SCHOOL, NORTON, VA. $500,000. CD 5/16.

G. Arthur Thomason, Lexington, N. C. Low Bidder, $363,875, Dunbar HIGH SCHOOL; **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C., $531,600, Senior HIGH SCHOOL, LEXINGTON, N. C. City, Lexington, N. C. Bids May 14. CD 5/7.

Kermit Byers, Albertville, Ala. Low Bidder. $147,500. WAREHOUSE AND OFFICE, STEVENSON, ALA. North Alabama Electric Co-operative, Stevenson, Ala. Bids May 15. CD 4/26.

CONTRACTS—HEAVY CONSTRUCTION

B. E. Walker, P. O. Box 1249, Jackson, Miss. Contract Awarded. $116,443. Proj. 126.5, sanitary sewers in Shadowlawn subdivision, JACKSON, MISS. City, Jackson, Miss. Bids May 14. CD 4/26.

CONTRACTS—BUILDINGS

▲ **J. C. Long,** 90 Broad St., Charleston, S. C. Owner Builds. Approx. $2,400,000. 400 HOMES, AIKEN, S. C. CD 3/9.

Kirkwood Baptist Church, 2065 Boulevard St. S.E., Atlanta, Ga. Owner Builds. $400,000. CHURCH, ATLANTA, GA.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Ill., Brookfield—SCHOOL—B.A. 6/5—School Dist. 95, 3524 Maple Ave., Gross School addn. $500,000. Jos. C. Llewellyn, 38 S. Dearborn St., Chicago, Zone 3, archt.

CONTRACTS—HEAVY CONSTRUCTION

L. W. Lamb, Holland, Mich. Contract Awarded. $825,538. rein.-con., steel bridge over Muskegon River, Proj. FBI of 62-12-1, C1, (F-268 4). Newago Co., MICHIGAN. State Hy. Dpt., 222 Townsend St., Lansing, 13, Mich. CD 5/3, under LB.

▲ **City, Dpt. Pub. Wks.,** Glenn C. Richards, superv., 104 City Hall, Detroit, Mich. Own Forces. $1,000,000. street repairs, patching chuckholes, pavement breaks, various sections, DETROIT, MICH. George R. Thompson, city engr. CD 3/30/43.

CONTRACTS—BUILDINGS

▲ **J. W. Snyder Co.,** 307 N. Michigan St., Chicago 1, Ill. Contract Awarded. $1,762,028. 6 story, Chas. Gilman Smith HOSPITAL, CHICAGO, ILL. University of Chicago, 58 and Drexel Sts., Chicago, Ill. Awarded May 10. CD 4/13, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

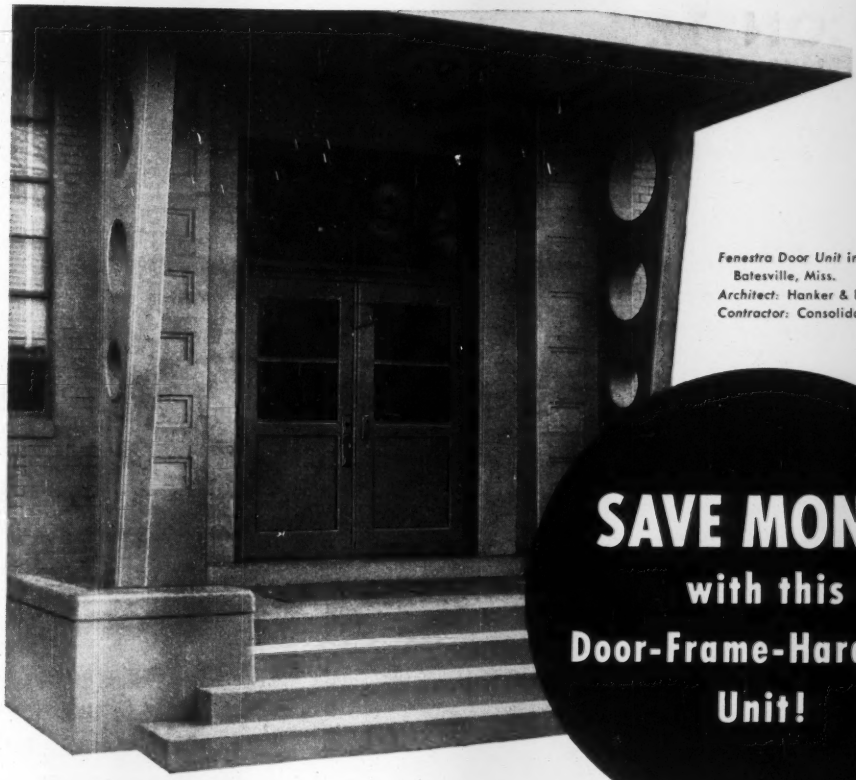
Ia., Tipton—B.A. 6/4—City, street imprvs., approx. 6,255 cu. yd. excav., 11,200 lin. ft. storm sewer, 75,000 sq. yd. c. conc., 65,400 sq. yd. b. conc. with crushed stone base, 43,000 lin. ft. conc. curb and gutter, 90 catch basins. Plans deposit $15. Moots & Patterson, Mt. Vernon, engrs.

† **Arkansas**—B.A. 6/12—U. S. Eng., P. O. Box 60, Vicksburg, Miss., approx. 1,099,000 cu. yd. earthwork on north bank of Arkansas River, CIVENG 22-052-51-181. Jefferson Co.

BIDS ASKED—BUILDINGS

Tex., Luling—HOUSING—B.A. 6/5—Luling Housing Auth., Luling, 66 dwelling units for total 33 dwellings, brick, hollow tile, slab on fill, Tex. 4-1. $546,000. Plans deposit $50. John Linn Scott & Assoc., 406 W. 17 St., Austin, archts. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, engrs. CD 8/10.

(Continued on page 64)



Fenestra Door Unit in Batesville High, Batesville, Miss.
Architect: Hanker & Heyer.
Contractor: Consolidated Contractors.

SAVE MONEY with this Door-Frame-Hardware Unit!

It comes as a *package* . . . with frame and handsome hardware. It's amazingly simple and quick to install. Fenestra* Standardized Hollow Metal Doors *stay* working and looking like new through years of rough, tough use. They cost less to buy than flimsy doors!

HERE'S WHY THEY COST SO MUCH LESS:

1. **Low First Cost**—Fenestra's great manufacturing facilities, engineered for volume production and elimination of waste of materials and man-hours, can turn out more high-quality door units . . . in less time . . . at lower cost.
2. **Low Installation Cost**—Fenestra Hollow Metal Doors come *complete with strong steel frames and shining hardware.* Installer just bolts the frame together, attaches it to floor and anchors it to wall, screws on template locks and hinges, hangs the door. No cutting or fitting or mortising or puttying or prime-painting. Saves on-the-site time, labor and money!
3. **Low Maintenance Cost**—Fenestra Hollow Metal Doors won't sag, warp, swell, shrink or splinter. They can take a beating and come up smiling. An occasional coat of paint makes them look like new. They're insulated, too, for quiet performance.

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The picture shows a mobile Sauerman Power Scraper unit, often termed a Tower Excavator, digging a basin 350 ft. wide and 1400 ft. long. The bucket rides up a ramp attached to the head-tower and dumps the spoil into cars. The cu. yd. bucket moves as much as 200 cu. yd. an hour.

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(Continued from page 62)

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Texas—RURAL DISTRIBUTION LINES—Lamar County Electric Co-operative Assoc., c/o Paul T. Hill, pres., Paris, soon lets contract approx. 105 mi. rural distr. lines and 18 mi. conversion in Lamar, Delta and Red River Counties. $150,000. Plans deposit $10. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs.

LOW BIDDERS—HEAVY CONSTRUCTION

Jensen Constr. Co., 1901 Easton Blvd., Des Moines, Ia., Low Bidder. $68,398. bridges, culverts, Proj. FN 898, Adair and Guthrie Counties***A. Olson Constr. Co., Waterloo, Ia., $102,643, bridges, culverts, Proj. FN 3, Jefferson Co.***Ray C. Yegge & Sons, Inc., Boone, Ia., $98,243, bridges, culverts, Proj. FN 839, Webster Co., IOWA. State Hy. Comn., Ames, Ia. Bids May 15. CD 5/3.

▲ **Fred Carlson Co.**, Decorah, Ia., Low Bidder, $645,860, c. conc. wid'n., resurf. 3.25 mi. Proj. U-200 (6), Black Hawk Co.***Central Engineering Co., 2531 Rockingham Rd., Davenport, Ia., $118,021, conc. wid'n., resurf. 0.521 mi. Proj. U-927 (1), Scott Co. ***Western Contracting Corp., 400 Benson Bldg., Sioux City, Ia., $442,324, paving 7.977 mi. Proj. FN-193, Calhoun and Greene Counties***Central Constr. Co., Indianola, Ia., $124,138, paving 7.977 mi., Proj. FN-193, Calhoun and Greene Counties ***J. B. Dahm, Pella, Ia., $60,235, grading 6.868 mi. Proj. S 179 (5), Marion Co., IOWA. State Hy. Comn., Ames, Ia. Bids May 15. CD 5/3.

▲† **Peter Kiewit Sons' Co.**, 245 Fort Rd., Box 875, Sheridan, Wyo. Low Bidder. $2,212,509, est. $2,078,237. earthwork, canal lining and structures for Angostura canal, Station 10 plu 89 to 1611 plus 50, wasteways, laterals, sublaterals and surface drains, Missouri River Basin Proj. near Hot Springs, Spec. DC-3372, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Hot Springs, S. D. Bids May 8.

City, Talihina, Okla., received no bids Apr. 27, WW exten., TALIHINA, OKLA. City, Talihina, Okla. CD 4/13.

▲† **Sletten Constr. Corp.** and **Patton Constr. Co.**, 1322 10 Ave. N. Great Falls, Mont. Low Bidder. $1,259,431, est. $1,422,503. Schedule 1, barracks, mess FACILITIES; $1,320,272, est. $1,461,853, Schedule II, barracks, mess facilities, Great Falls Air Force Base, Eng. 45-164-51-2, GREAT FALLS, MONT. U. S. Eng., 19 E. Poplar St., Walla Walla, Wash. Bids May 15. CD 4/26.

▲† **Nelson-Smith Constr. Co.**, 812 2 St. S., Great Falls, Mont.; **Kilely Constr. Co.**, Rapid City, S. D. and **Northwest Engineering Co.**, Butte, Mont. Low Bidders. $2,322,377, est. $3,764,898, airfield pavement, Great Falls Air Force Base, Eng. 45-164-51-3, GREAT FALLS, MONT. U. S. Eng., 19 E. Poplar St., Walla Walla, Wash. Bids May 15. CD 4/27.

▲ **Macco Corp., and Puget Sound Drilling & Dredging**, 14409 Paramount Blvd., Paramount, Calif. Low Bidder. $7,178,766. Reservoir Number 22 Dam, DENVER, COLO. Bd. Water Comrs., City and County Bldg., Denver, Colo. Bids May 17. CD 3/29.

LOW BIDDERS—BUILDINGS

▲ **Newstrom-Davis & Co.**, West 8 Ave., Denver, Colo., Low Bidder, $1,597,000, est. over $300,000. 200 living unit, HOUSING PROJ., Colo. 1-5, between Zuni and Tejon and W. Alameda and Bayaud Aves., DENVER, COLO., Denver Housing Auth., 1449 Navajo St., Denver, Colo. Bids 5/8. CD 4/9.

† **Vinson Constr. Co.**, Box 930, Phoenix, Ariz., Low Bidder, $609,029. BUILDING and facilities, Groups 141-144 Area TA-16, Proj. 1, Inv. No. 291-51-86, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids May 10.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Allis-Chalmers Mfg. Co.**, 1127 S. 70 St., Milwaukee, Wis. Contract Awarded. $2,864,740. Hydraulic turbines for Fort Randall Reservoir, Proj. Inv. 92, near Lake Andes. SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Apr. 5. CD 4/19, under LB.

▲† **Brezina Constr. Co.** and **H. H. Hackett Sons**, Box 1388, Rapid City, S. D. Contract Awarded. $1,441,000. quarters, mess halls Rapid City Air Force Base, near Weaver, Inv. No. 24, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Apr. 22. CD 5/10, under LB.

▲† **G. L. Tarlton Constr. Co.**, 5505 Dale St., St. Louis, Mo. Contract Awarded. $1,955,187. Schedules 1, 3, 4 and 5, **Adler Constr. Co.**, Loveland, Colo. Schedule 6, $756,450. North Poudre Canal Diversion Dam and North Poudre Supply Canal from Station 6 plus 60 to Station 678 plus 55, Colorado-Big Thompson Proj., approx. 15 mi. northwest of Ft. Collins, Spec. DC-3331, COLORADO. Bureau Reclamation, Dpt. Interior, Ft. Collins, Colo. Bids Mar. 28. CD 4/5, under LB.

CONTRACTS—BUILDINGS

Madsocn Products Co., 331 Almeda Rd., Houston, Tex., Own Forces. Approx. $90,000. FOOD PLANT, HOUSTON, TEX. Dean Eichelberger, 3402 San Jacinto St., Houston, Tex., archt.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Wash., Wenatchee—B. A. 6/11—Chelan County Public Utility Dist., c/o Stone & Webster Eng. Corp., engrs., 49 Federal St., Boston, Mass., 92 crest gate latch assemblies and 30 latch-supporting steel frames for

Rock Island Dam; fixed roller type drop gate, 8 stop log sect., 6 head gate sects., etc. for Rock Island Dam.

Calif., Alvarado—B. A. 6/19—Bd. Alvarado Sanitary Dist., 935 Vallejo St., sewage disposal works. Plans deposit $25. Harry Goodridge, Grovt St., and Alston Way, Berkeley, engr.

BIDS ASKED—BUILDINGS

▲ **Calif., Los Angeles**—MEDICAL CENTER—B.A. 6/5—Bd. Regents University of California, 405 Hilgard Ave., Los Angeles, 700,000 sq. ft. rein.-con., brick veneer medical center, incl. 5 story 300-bed hospital, 4 story out-patient unit, classrooms, laboratories, offices, etc. $15,500,000. Welton Becket & Assocs., archts. and Erick Murray & Assoc. structural engrs., at 5657 Wilshire Blvd. Ralph E. Phillips, 600 St. Paul Ave., mechanical engr. CD 3/24/49.

Ore., Lebanon—HOSPITAL—B. A. 6/12—Lebanon Community Hospital, Central Lane, 50-bed rein.-con. Hospital. $685,000. Extended date. Roald Schmeer & Harrington, Spalding Bldg., Portland, archts. CD 5/16.

LOW BIDDERS—HEAVY CONSTRUCTION

† **Chicago Bridge & Iron Co.**, White-Henry-Stuart Bldg., Seattle 1, Wash. Low Bidder. **$738,610**, est. $694,-670, eight 80,000 and two 55,000 bbl. fuel storage tanks at Mukilteo Depot, Eng. 45-108-51-156, MUKILTEO, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., Bids May 15. CD 5/8.

Fredericksen & Kasler, 212 13 St., Sacramento, Calif., Low Bidder, **$372,755**, grading, surf. 1.3 mi. for 4-lane highway from Santa Clara River Bridge through Montalvo, Ventura Co. CALIFORNIA. State Div. Hys., Los Angeles, Calif.

CONTRACTS—HEAVY CONSTRUCTION

† **T. E. Connolly, Inc.**, Sheldon Bldg., San Francisco, Calif., Contract Awarded, **$642,692**, diversion tunnel, access road for main dam, Folsom Dam, Folsom Reservoir Proj. CALIFORNIA. U. S. Eng., Wright Bldg., Sacramento, Calif. CD 4/14/44

City, City Hall, Yuba City, Calif. Own Forces. water supply sys. for Ledrod Annex area, YUBA CITY, CALIF. Former bids rejected. L.B. **$46,096**. CD 5/4, under LB.

CONTRACTS—BUILDINGS

Howard S. Wright & Co., 407 Yale Ave. N., Seattle, Wash. Contract Awarded. Approx. **$160,000**. 1 story 120x200 ft. rein.-con., masonry WAREHOUSE, SEATTLE, WASH., Midtown Investment Co., c/o contractor. S. G. Morrison, 1404 2 Ave. Seattle, Wash., archt. CD 5/11.

Herman Lawson, 465 Tehama St., San Francisco, Calif. Contract Awarded, **$585,970**, plumbing and mechanical work for Abraham Lincoln HIGH SCHOOL SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif., Bids Apr. 26, awarded May 8. CD 5/11, under LB.

▲ **Williams & Burrows**, 10 California St., Burlingame, Calif. Contract Awarded, **$1,258,175**, boys and girls GYMNASIUM, other bldgs. at HIGH SCHOOL on El Camino Real, SOUTH SAN FRANCISCO, CALIF. South San Francisco Unified School Dist., South San Francisco, Calif. CD 5/11, under LB.

ALASKA

BIDS ASKED—BUILDINGS

Alaska, Douglas—HOUSING—B. A. 6/12—Alaska Housing Auth., Anchorage, 50 two-story frame housing units. $600,000. Plans deposit $35. Miller & Abison, 1410 Hubbel Pl., Seattle, Wash., archts. CD 8/30.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho. Low Bidder, **$1,300,228**, rehabilitation of King Salmon port, incl. construction 2 alert aprons, taxiway, etc. Inv. 851-572, ALASKA. Civil Aeronautics Admin., Box 440, Anchorage, Alaska. Bids May 14. CD 4/26.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Brantford—B.A. 6/11—Brantford Public Utilities Comm., 32 Queens St., WW expansion with filtration plant capacity to be increased to 7,500,000 gal. daily, chemical bldg. for treating water. $300,000. Plans deposit $50. James F. MacLaren Assoc., 705 Yonge St., Toronto, engrs. CD 3/6.

BIDS ASKED—BUILDINGS

▲ **Man., Winnipeg**—PLANT—B.A. 6/6—Manitoba Telephone System, 166 Portage Ave., 1 story, 230x690 ft. main supply and plant; 3 story, 47x230x155 ft. office bldg., garage for 175 cars, steel frame, brick constr. $1,500,000. Green-Blankstein-Russell & Assoc., Time Bldg., archts.

CONTRACTS—HEAVY CONSTRUCTION

Standard Gravel & Surfacing of Canada, Ltd., 5340 1st St. S.W., Calgary, Alta., Contract Awarded, **$185,-285**, irrigation canal and compacted earth dam and other works, Contr. 1 Div. 4; **Victor Watson**, Airdrie, Alta., **$333,745**, irrigation canal, etc. on St. Mary-Milk River Irrigation Proj., Div. 5 (Contr. 1), ALBERTA. Province of Alberta, Water Resources Dept., Edmonton, Alta. Awarded May 7. CD 2/2.

T. A. Andre & Sons, Ltd., 580 Brock St., Kingston, Ont. Contract Awarded, **$600,000**. telecommunications and electrical bldg. for Canadian Army Camp, BARRIEFIELD, ONT. Defence Constr. Ltd., 441 Queens Quay W., Toronto, Ont. Bids May 8, awarded May 15. CD 4/23.

CONTRACTS—BUILDINGS

Commonwealth Constr. Co. Ltd., 670 Taylor St., Vancouver, B. C. Contract Awarded, **$318,633**. 1 story, 82x360 ft. concrete, steel PLANT, VANCOUVER, B. C. British Ropes Canadian Factory, Ltd., Granville Island, Vancouver, B. C. Awarded May 11. CD 6/30/49.

Dinsmore Constr. Ltd., McDougall St., Windsor, Ont., Contract Awarded. Approx. **$225,000**. 1 story, 140x 160 ft. brick, WAREHOUSE and FOOD MARKET, WINDSOR, ONT. Dominion Stores, Ltd., 832 Old Weston Rd., Toronto, Ont. Riddle & Connor, 422 Wellington St., London, archts.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Palo Alto—City, City Hall, voted bonds, water sys. $250,000. CD 4/20.

Ga., Sparta—City, 6 mi. water line running from Sparta to Fort Creek as source of new supply, $200,000 J. B. McCrary Co., 22 Marietta St. Bldg., Atlanta, consult. engr.

Ga., Waynesboro—City, WW imprvs. $300,000. Patchen & Zimmerman, Daniel Field, Augusta, consult. engrs.

Ill., Loves Park—City, WW, $600,000, Frances Eng. Co., 305 S. Main St., Rockford, consult. engrs. CD 8/10.

▲ **La., Westwego**—City, voted $1,250,000 bonds May 8, WW imprvs. CD 4/18.

▲ **N. C., Asheville**—City, City Hall, voted bonds, North Fork Dam and Reservoir and sys. extens. in West Asheville. $2,750,000. Charles T. Main, Inc., 80 Federal St., boston, Mass., consult. engr. CD 4/5.

▲ **N. C., Durham**—City, voted bonds, WW imprvs. $1,500,000. CD 11/15.

▲ **S. C., Aiken**—City, filtration plant. $1,000,000. Wiedeman & Singleton, Box 1878, Atlanta, Ga., consult. engrs. CD 3/23.

S. C., Windsor—Town, WW sys. $155,000. Rowe & Chapman, Williston, consult. engrs.

SEWERS, WASTE DISPOSAL

Del., Milton—Town, sewage treatment plant, $350,000, Johnson & Williams, 1225 19 St. N. W., Wash., D. C., consult. engrs. CD 3/22/46.

Ga., Waynesboro—City, sanitary sewer imprvs. $300,-000, Patchen & Zimmerman, Daniel Field, Augusta, consult. engrs. CD 3/23.

Ill., Benld—City, sewage disposal works, sanitary sewers. $300,000. Warren & Van Praag, 253 S. Park St., Decatur, consult. engrs. CD 1/25/46.

La., Westwego—City, voted $300,000 bonds, sanitary sewer. CD 4/17.

▲ **N. C., Durham**—City, voted bonds, sanitary sewer imprvs. $2,725,000. CD 11/16.

Pa., Canonsburg—Boro, sewage disposal plant, $500,000. Morris Knowles, Inc., 1312 Park Bldg., Pittsburgh, consult. engr.

▲ **S. C., Aiken**—City, sewage disposal plant. Approx. $2,000,000. Wideman & Singleton, Box 1878, Atlanta, Ga., consult. engrs. CD 3/23.

S. C., Windsor—Town, sanitary sewer imprvs. $185,000. Rowe & Chapman, Williston, consult. engrs.

Tex., Fort Worth—City, c/o W. O. Jones, mgr., City Hall, sanitary sewer mains and laterals in North and South Calmont Aves. $203,000. Joe J. Rady, 811 Insurance Bldg., consult. engr. CD 2/4/49.

Tex., Houston—The Sims Bayou Utilities Co., 4100 DeLeon St., 24-to 42-in. storm sewerage sys., $75,000; 6 and 8 in. sanitary sewer line extens., $65,000, in Sect. 3 in Chocolate Bayou Estates, Robert M. & E. S. Atkinson, 1st Natl. Bank Bldg., consult. engrs.

Tex., Sulphur Springs—City, voted bonds, sanitary sewerage sys. imprvs., extens. $250,000. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, consult. engr. CD 3/30.

Utah, Murray—City, c/o J. Clifford Hansen, mayor, Murray, exten. sewerage sys., construct sewage disposal plant. $750,000. Headman, Ferguson & Carollo, 3308 N. 3 St., Phoenix, Ariz., consult. engrs. Neff Eng. & Constr. Co., 2564 Evergreen Ave., Salt Lake City, engrs.

BRIDGES

O., Akron—City, M. L. Davis, service dir., Cedar St. Viaduct, a bridge downtown over Ohio Canal, linking East and West Cedar St. $500,000. Howard-Needles-Tammen & Bergendoff, 7400 Wilson Rd., St. Louis, Mo., consult. engrs. CD 12/10/43.

STREETS AND ROADS

Georgia—State Hy. Dpt., 2 Capitol Square, Atlanta.

Bibb Co.—relocate U. S. Hy. 80, $100,000.

Ill., Pekin—City, City Hall, paving Margaret St. $100,-000, Crenshaw & Jost, 512 Court Ct., consult. engrs. CD 3/15/45.

La., Westwego—City, voted bonds May 8, street imprvs. $180,000. CD 4/18.

Minn., Minneapolis—City, C. C. Swanson, clk., c. conc. paving 2 mi. 28 Ave. betwen Hiawatha Ave. and 38 St. and between Minnehaha Parkway and 62 St., $300,000. H. Erickson, city engr.

Minn., Minneapolis—Hennepin Co., R. F. Fitzsimmons, aud., 106½ Court House, Minneapolis and Village of St. Louis Park, J. Justad, clk., c. conc. paving 4 lane 44 ft. wide, eastern end of Minnetonka Blvd. about 1 mi. $100,000.

O., Wapakoneta—Comrs., Auglaize Co., Court House, resurf., repair county highways. $320,000. George Shuster, co. engr.

Tex., Liberty—City, 65 blocks 36 ft. wide permanent type street paving, $682,500.

Wash., Seattle—City, County City Bldg., wid'n. E. 47 and other streets in University Dist. $211,749. R. W. Finke, City engr. CD 8/8/49.

Wis., Cudahy—City, alley paving. $110,000. E. Duszynski, city engr.

Que., Chicoutimi—City, G. Carrier, clk., construct new streets. Approx. $300,000. George Proulx, c/o owner, engr.

EARTHWORK, WATERWAYS

† **Neb., Nebraska City**—U. S. Eng., 1709 Jackson St., Omaha, construct seawall around city power and water plant for flood protection. $100,000.

Wash., Wenatchee—Beehieve Irrigation Dist., Wenatchee, reservoir and feeder pipe line. $100,000.

AIRPORTS

Ia., Waterloo—AIRPORT IMPRVS.—City, airport imprvs. $150,000. A. B. Cook, Waterloo, city engr.

Kan., Dodge City—AIRPORT IMPRVS.—City, airport imprvs. $150,000.

Kan., Garden City—AIRPORT IMPRVS.—City, airport imprvs. $100,000.

Kan., Liberal—AIRPORT IMPRVS.—City, airport imprvs. $103,888.

Minn., Minneapolis—AIRPORT IMPRVS.—Metropolitan Airports Comm., R. Aldrich, exec. dir., 2429 University Ave., St. Paul, resurf. north-south runway at Wold-Chamberlain Field, $300,000. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, consult. engrs. CD 3/24/48.

Neb., Bruning—AIRPORT—City, airport imprvs. $120,-000.

Neb., Fairmont—AIRPORT—City, airport imprvs. $120,-000.

Neb., Harvard—AIRPORT—City, airport imprvs. $120,-000.

Neb., Lincoln—AIRPORT—City, City Hall, municipal airport imprvs. $200,000. D. L. Erickson, city engr.

† **N. M., Alamogordo**—UTILITY FACILITIES—U. S. Eng., P. O. Box 1538, Albuquerque, addnl. utility facilities, Holloman Air Force Base, Serial No. Eng 29-005-51-47.

▲† **S. C., Charleston**—AIR BASE—U. S. Eng., (P. O. Box 905) 33 Custom House, imprv. airport as army air base. $35,000,000.

LATIN AMERICA

Mexico, Mexico City—Cia nacional de Productos Tubulares, S. A. 16 de Septiembre, 36-34 Mexico City, plans steel pipes fittings factory. $350,000.

Mexico, Puebla—N. R. M. Bolivar, 19, Mexico City, plans grand central passenger-freight rail station. $1,500,000.

AMERICANS ABROAD

▲ **Australia**—REFINERY—Shell Oil Co., Melbourne, plans refinery, Geelong (near Melbourne), $10,000,000.

PUBLIC BUILDINGS

▲ **Conn., Hartford**—LIBRARY—City, City Hall, library. $1,950,000.

Ind., Indianapolis—WAREHOUSE, etc.—Indiana National Guard, adj. gen. Robinson Hitchock, State House, warehouses, maintenance and motor maintenance shops, etc. on north edge of Stout Field, facing Minnesota Ave. $600,000.

Ia., Shenandoah—SCHOOL—Bd. Educ., defeated bonds, schools, $550,000. (Correction-status). CD 5/1.

▲ **Ia., Sioux City**—SCHOOL—Bd. Educ., voted $1,200,-000 bonds, May 7 school. CD 4/26.

Ia., Webster City—SCHOOL—Bd. Educ., defeated $350,-000 bonds, May 3, school. CD 4/16.

▲ **La., Homer**—COURT HOUSE—Claiborne Parish Police Jury, Homer, $1,000,000 bond election June 19, court house. CD 12/26.

▲† **La., New Orleans**—BUILDINGS—Eighth Naval Dist., 600 South St., plans by August Perez & Assoc., Audubon Bldg., rehabilitation of 30 bldgs. Algiers Naval Station. $1,000,000.

▲† **Md., Fort George Meade**—TROOP SPACES—U. S. Eng., 24 St. and Maryland Ave., Baltimore, plans by Fenton & Lichtig, 2023 Maryland Ave., Baltimore, Zone 18, and F. L. W. Mohle & Assoc., 2514 N. Charles St., Baltimore, permanent type noncombustible troop spaces, Contr. DA 18-020, Eng. 235, $3,000,000;

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plans by Rummel, Klepper & Kahl, engrs. and archts., 1021 N. Calvert St., Baltimore, Zone 2, permanent troop spaces, supporting facilities, Contr. DA 18-020, Eng. 234, $17,000,000. CD 5/10.

▲ **Mass., Fall River**—HOUSING—City of Fall River Housing Auth., plans by Samuel Dubitsky, 41 N. Main St., 300 housing units. $3,000,000. CD 3/3/49.

▲ **Mich., Northville**—HOSPITAL—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, plans by O'Dell, Hewlett & Luckenbach, 2300 Dime Bldg., Detroit, 2 story, rein. conc. Geniatric Bldg., Northville State Hospital; $1,000,000. CD 5/8/46.

Minn., Austin—COURT HOUSE—Mower Co., C. M. Hubbard, aud., plans by Liebenberg & Kaplan, 51 S. 13 St., Minneapolis, 3 story, 59x168 ft. court house, $500,000. CD 11/3/49.

▲ **Miss., Columbus**—SCHOOLS—City, plans by R. W. Naef, Masonic Temple Bldg., Jackson, White High School, $500,000, negro high school, $500,000. CD 11/30.

Miss., Pascagoula and Ocean Springs—SCHOOL—Pascagoula and Ocean Springs School Dists., Pascagoula, plans by Claude H. Lindsley, 5008 Almeda Rd., Houston, Tex., school, $874,000. CD 3/12.

Mo., Independence—SCHOOL—Bd. Educ., voted $300,000 bonds, replace Benton School, R. O. Weatherford Jr., 206 N. Liberty St., archt. CD 3/15.

▲ **Mo., St. Louis**—SCHOOL—Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., Zone 1, $17,230,000 bond election June 5, school addns. CD 5/7.

Neb., Schuyler—HIGH SCHOOL—Bd. Educ., voted $225,000 bonds, high school. $475,000. CD 4/18.

N. J., Marmora—SCHOOL—Upper Twp. School Dist., John Gandy, clk., plans by D. W. Haining, 2311 Boardwalk, Atlantic City, consolidated school. Approx. $300,000.

N. J., Port Newark—WAREHOUSES—Port of New York Auth., 111 8th Ave., New York 11, N. Y., 2 lumber warehouses, southside of city channel. $305,000.

▲ **N. Y., Brooklyn**—SCHOOLS—Bd. Educ., 49 Flatbush Ave., exten., Zone 1, plans by Henry V. Murphy, 1 Hanson Pl., Zone 17, P.S. 287, Navy and Nassau Sts., Proj. E-184, $1,750,000; plans by Beatty & Berlenbach, 32 Court St., Zone 2, P.S. 152 addn., E. 23 St. and Glenwood Rd., Proj. E-720, $800,000.

▲ **N. Y., Brooklyn**—SCHOOL—Bd. Educ., 49 Flatbush Ave. Ext., Zone 1, plans by O'Connor & Kilham, 101 Park Ave., New York, Zone 17, P.S. 268, Clarkson Ave. and E. 53 St., Proj. E-63. $1,785,000. CD 3/4/43.

N. Y., Great Kills—SCHOOL—Bd. Educ., 49 Flatbush Ave. Exten., Brooklyn, plans by George A. Boehm, 2 W. 45 St., New York, Zone 19, P.S. 8 addn., Lindenwood Ave. and Park Terrace, Proj. E-724. $825,000.

▲ **N. Y., New York**—SCHOOL—Bd. Educ., 49 Flatbush Ave., Exten., Brooklyn, Zone 1, plans by Eggers & Higgins, 100 E. 42 St., Zone 17. P.S. 112, Schieffelin Ave. and E. 226 St., Proj. E-736. $1,538,500.

▲† **N. Y., West Milton**—POWER PLANT— Atomic Energy Comn., c/o General Electric Co., River Rd., Schenectady, 75x250 ft. power plant; 33x85 ft. waste handling plant; 40x50 ft. boiler plant; 30x160 ft. vehicle storage; 55x150 ft. foundations for cooling tower and pump house. $3,500,000. Charles T. Main, Inc., 80 Federal St., Boston, Mass., archt.-engr.

N. C., Durham—POLICE—City, defeated bonds, police bldg. $500,000. CD 3/23.

O., Blanchester—SCHOOL—Bd. Educ., Blanchester, voted $300,000 bonds, elementary school and imprvt. to present school.

▲ **O., Marion**—HIGH SCHOOL—Bd. Educ., voted bonds, high school and imprvs. to other city schools. $2,900,000. CD 4/18.

▲ **O., Newark**—SCHOOL—Bd. Educ., Newark, voted bonds school program improvements. $2,650,000. CD 4/18.

▲ **O., Steubenville**—COURT HOUSE—Comrs. Jefferson Co., Court House, defeated bonds, court house. $3,000,000. CD 3/12.

O., Willougby—SCHOOL—Bd. Educ., Willoughby, voted $975,000 bonds, elementary school, 3-room addn. to Lincoln Elementary School; imprv. several other bldgs.; imprv. high school athletic field.

O., Windham—HIGH SCHOOL—Bd. Educ., high school. $721,000.

Ore., Salem—HOSPITAL—State Bd. Control, Capitol, Salem, plans by Morton H. Caine, Terminal Sales Bldg., Portland, hospital adn. and employees dormitory at State Tuberculosis Hospital. $885,000.

Tenn., Hohenwald—FACTORY—City, factory. $500,000.

▲ **Tex., Big Spring**—COURT HOUSE—Howard Co., Court House, voted bonds, court house, $1,000,000. CD 4/24.

▲ **Tex., Edna**—DWELLINGS—Edna Housing Auth., Edna, plans by F. Perry Johnston, 3908 Main St., Houston, 175 dwelling units. $1,325,000. CD 12/8.

Tex., Gonzales — HOUSING — Gonzales Housing Auth., Gonzales, plans by Smith & Mills, 921 Mercantile Bank Bldg., Dallas, 50 unit housing. $400,000. CD 5/4.

Tex., Jefferson—DWELLING UNITS—Jefferson Housing Auth., Jefferson, plans by Smith & Mills, 921 Mercantile Bank Bldg., Dallas, 50 dwelling units. $400,000. CD 1/27/50.

Tex., Midland—HIGH SCHOOL—Midland Independent School Dist., Midland, plans by Wilson & Patterson, Majestic Bldg., Fort Worth, Junior High School $900,000. CD 5/17.

Tex., Midland—SCHOOLS—Midland Independent School Dist., Midland, voted bonds South Elementary and Carver School addns. $300,000; 8-room addn. existing school, new elementary school, $300,000.

Tex., Mt. Pleasant — HOSPITAL — City, 40-bed city-county hospital. $400,000. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, consult. engr. and archt. CD 11/24.

▲ **Tex., Pasadena** — SCHOOLS — Pasadena Independent School Dist., Pasadena, bond election May 26, 16-classroom addn. to Senior High School, $400,000; elementary school, $300,000; South Houston Junior High School and Golden Acres School imprvs., remodeling. $400,000. Lloyd & Morgan, 4605 Montrose Bldg., Houston, archts. CD 3/28/50.

▲ **Tex., Pasadena**—HIGH SCHOOL—Pasadena Independent School Dist., bond election May 26, Junior High School, Tex. 51-C-45-A. $1,500,000. Lloyd Morgan, 4605 Montrose Bldg., Houston, archt. CD 4/24.

Tex., Raymondville—HIGH SCHOOL—Raymondville Independent School Dist., Raymondville, voted $300,000 bonds, Senior High School. $450,000. Zeb Rike, Nelson Bldg., McAllen, archt. CD 5/2.

▲ **Tex., San Antonio**—HOUSING—San Antonio Housing Auth., 419 S. St. Marys St., plans by Ford & Rogers, Willow Way, Noonan & Thompson, 803 American Hospital & Life Bldg., and Allison B. Peery, Bedell Bldg., 275 housing units for Negroes, Proj. 6-7. $2,600,000. George R. Rhine & Co., 209 San Pedro St., and Wm. Orrison Engineers & Assoc., 215 Travis Bldg., consult. engrs. CD 10/24/49.

W. Va., Parkersburg—SCHOOL—Bd. Educ., Frank H. Hanes, pres. 725 Green St., plans by Charles J. Ross & Alan G. Archer 4040 Juliana St., one new school, and remodeling. $600,000. CD 12/7/49.

COMMERCIAL BUILDINGS

▲ **Calif., Wilmington**—DWELLINGS—Avalon Properties Co., 109 E. 236 St., plans by Norwood & DeLong, 1447 San Marino Ave., San Marino, 278 frame, stucco dwellings, Main and Sepulvida Sts. $2,500,000.

▲ **Conn., New Haven**—CLUB—Knights of Columbus, National Headquarters, 45 Wall St., plans by J. Gerald Phelan, 211 State St., Bridgeport, 8 or 10 story, 120x150 ft. masonry club, Church and Wall Sts. $3,000,000.

▲ **Mo., Clayton (St. Louis 5, P. O.)**—OFFICE—Brown Shoe Co., 16 Washington Ave., St. Louis, 2 story headquarters office. $2,000,000.

▲ **N. Y., Brooklyn**—APARTMENT—Fort Hamilton Realty Corp., 16 Court St., Zone 2, plans by S. Gardstein & Son, 50 Court St., Zone 2, 6 story apartment, 221 McDonald Ave., $700,000; 6 story apartment, 243 McDonald Ave., $600,000.

N. Y., Kew Gardens—APARTMENT—Kalikow Constr. Corp., c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, Union Turnpike and 135 St. $990,000.

▲ **N. Y., New York**—APARTMENT—Court Square Bldg., Inc., Harold Uris, vice pres., 575 Madison Ave., Zone 22, converting 18 story apartment, 300 Park Ave. into office bldg. $5,000,000.

N. Y., New York—OFFICE—United Merchants & Mfrs., Inc., 1407 Broadway, Zone 18, office bldg. alterations, 4-6 E. 34 St. $386,894.

N. Y., Rochester—STORE—Phillip's Bldg. Co., c/o Phillip Gambaeurta, 25 Exchange St., store, Clinton Ave. and Ridge Rd. $335,000.

O., Akron—HOSPITAL—Bd. Trustees, St. Thomas Hospital, 444 N. Main St., plans by Robert Kraus & William Helmkamp, 247 E. Exchange St., hospital addn. $700,000.

▲ **Okla., Lawton**—HOTEL—Lawton Hotel Co., Lawton, plans by Paul Harris, Chickasha, 150-room hotel. $1,400,000.

▲ **Ore., Portland**—OFFICE—Lloyd Corp., 720 N.E. 12 St., 8 story office for Bonneville Power Admin. $3,000,000. F. B. Drinker, c/o owner, engr. CD 9/7/45.

▲ **Pa., Phila.**—APARTMENT—Equitable Life Assurance Society, 393 7 Ave., New York, N. Y., apartment development, vicinity of Independence Square Mall. $10,000,000.

▲ **Pa., Phila.**—APARTMENT—Integrity Improvement Corp., School House and Gypsy Lanes apartment development, School House Lane etc. $22,500,000.

▲ **Pa., Phila.**—OFFICE—Pennsylvania Lumbermans Mutual Fire Insurance Co., Market St. Natl. Bank Bldg., plans by Harbeson, Hough, Livingston & Larson, 117 S. 17 St., office bldg. $1,000,000.

Pa., Phila.—STEPHEN GIRARD BLDG.—Bd. Directors of Phila. City Trusts, 120 S. 3 St., plans by Thalheimer & Wletz, 1315 Walnut St., Stephen Girard bldgs., alterations and renovation. $995,000.

Tenn., Memphis—HOUSING—Joyner-Hard Co., Commerce Title Bldg., plans by Clark & Fay, White Station, 500 unit 2 story brick, Negro housing, concrete fdn. $500,000.

Tenn., Memphis—SCHOOL—Second Presbyterian Church, 4055 Poplar Ave., steel, concrete school, Central, Poplar and Goodlett Sts. $450,000.

Tenn., Whitehaven—BANK—Peoples Bank of Whitehaven, Whitehaven, plans by Hanker & Heyer, Commerce Title Bldg., Memphis, 80x50 ft., steel concrete brick bank, black top parking lot. $450,000.

Tex., Bellaire—DWELLINGS—W. A. Keep, 1110 Winbern St., Houston, plans by Joseph B. Reynolds, 2518 Times St., Houston, 41 cedar shake, brick, stone type dwellings, concrete slab fdn. $700,500.

▲ **Tex., Dallas**—BANK—First National Bldg., 1401 Main St., alterations, remodeling, masonry type bank bldg. $1,500,000.

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Tex., Dallas—MERCANTILE—A. Harris & Co., Main and Akard Sts., plans by George L. Dahl, 2101 N. St. Paul St., 3 story masonry mercantile bldg. addn. incl. air-conditioning. $550,000.

Tex., Dallas—COMMERCIAL—Sam D. Ventura, 4920 Seneca St., plans by J. N. McCamnon, 212 S. St. Paul St., 2 story 45,000 sq. ft. masonry commercial. $400,000.

▲ **Tex., Fort Worth**—HOSPITAL, etc.—Dr. Judge M. Lyle, 3901 S. Westcliff Rd., hospital and clinic. $2,273,939.

Tex., Fort Worth—RELIGIOUS EDUCATION—Texas Christian University, c/o Dr. M. E. Sadler, pres., Fort Worth, plans by Joseph R. Pelich, Commercial Std. Bldg., 3 unit religious educ. bldg. $550,000. CD 10/27.

Tex., Houston—COMMERCIAL—Mantex Corp., 1st Natl. Bank Bldg., masonry commercial. $686,000.

Tex., Houston—DWELLINGS—Thomas & Carol Constr. Co., c/o Oak Meadows Addn., 58 frame, cedar shake dwellings. $535,000 in new extension of Oak Meadow.

▲ **Que., Alymer**—DWELLINGS—Caine Assoc., Ltd., 1416 Sherbrooke St. W., Montreal, 1,000 dwellings. $12,000,000. Dr. E. G. Faludi, 24 E. Bloor St., Toronto, Ont. Engr. CD 1/4.

INDUSTRIAL BUILDINGS

Ala., Birmingham—PLANT—Appleton Electric Co., 1713 W. Wellington St., Chicago, Ill., mfg. plant. $650,000.

▲ **Ga., Valdosta**—MILL—National Container Co., Borden and Review Sts., Long Island City, N. Y., kraft board pulp and paper mill. $25,000,000.

▲ **Ill., Cicero**—PLANT—National Malleable & Steel Casting Co., Roosevelt and Laramie St., expansion of plant. $1,000,000.

▲ **Ill., Edwardsville**—SHOPS—Illinois Terminal Railroad, J. L. Loida, ch. engr., 710 N. 12 Blvd., St. Louis, 1, Mo., car and locomotive repair shops on 27-acre site just south of city limits, Approx. $1,000,000.

▲ **Ill., Melrose Park**—PLANT—National Malleable & Steel Casting Co., 25 Ave. and C & N N. W. R. R., plant addns. $1,000,000.

Ind., Indianapolis—WAREHOUSE, etc.—Massey-Harris Co., 1721 Packard Ave., Racine, Wis., plans by Hanker & Heyer, Commerce Title Bldg., Memphis, Tenn., 202x268 ft. combination warehouse and office, and sales display bldg., So. Arlington Ave. and Brookville Rd. $295,000.

▲ **La., Baton Rouge**—REFINERY—Continental Oil Co., Westlake, via Baton Rouge, tripling existing capacity of crude oil refinery at Westlake $23,000,000.

▲ **N. J., Gibbstown**—PLANT—Atlantic City Electric Co., Kentucky and Pacific Aves., Atlantic City, generator plant. $6,500,000. Burns & Roe, 233 Broadway, New York, N. Y., consult. engrs.

▲ **N. Y., Schenectady**—PLANT—General Electric Co., River Rd., 80,000 sq. ft. generator plant addn. $6,500,000. CD 10/24/46.

▲ **O., Fremont**—FACTORY—Bingham-Herbrand Corp., Robert Kerr pres., Fremont, factory, mfg. jet aircraft parts. $5,000,000.

▲ **O., Gibsonburg**—PLANT—Kelley Island Lime & Transport Co., Leader Bldg., Cleveland, dolomite process works. $1,200,000. John F. Meissner, Inc., 308 W. Washington St., Chicago 6, Ill., consult engr.

▲ **O., Rossford**—FACTORY—Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo, factory to produce precision plate glass. $14,183,000.

▲ **O., Toledo**—CATALYTIC CRACKING UNIT—Standard Oil Co. of Ohio, Midland Bldg., Cleveland, catalytic cracking unit at refinery, cedar Point Rd. $9,000,000.

Pa., Clymer—MANUFACTURING BLDG.—Hiram Swank Sons, Johnstown, fine clay products mfg. bldg. $592,300.

Pa., Harrisburg—WAREHOUSE, etc.—D. & H. Distributors, Camden St., plans by Gerson Bennett, engr. and archt., 605 Park Ave., Baltimore, Md.., 1 story bsmnt., approx. 65,000 sq. ft., rein.-con., brick, concrete block, steel warehouse and showroom.

▲ **S. C., Spartanburg**—WAREHOUSE, etc.—Sears, Roebuck & Co., Ponce De Leon Ave., Atlanta, Ga., plans by Shutze & Armistead, Candler bldg., Atlanta, Ga., warehouse and office. $1,500,000.

▲ **Tex., El Paso**—PLANT—International Mining Corp., c/o B. F. Pitman Jr. & Assoc., Alamo National Bldg., San Antonio, manganese ore processing plant. $6,000,000.

Tex., Lubbock—PLANT—Lubbock Cotton Oil Co., Box 1161, masonry plant. $100,000.

▲ **Tex., Pampa**—PLANT—Celenese Corp. of America, Pampa, chemical plant. $3,000,000.

▲ **Tex., Texas City**—REFINERY—Pan-American Refining Co., Texas City, addnl. refinery benzine unit expansion $4,000,000. CD 3/22.

Va., Richmond—WAREHOUSE—Miller & Rhoads, 517 E. Broad St., rebuild warehouse. Approx. $100,000.

Wash., Spokane—WAREHOUSE, etc.—Cummins Diesel Co., S155 Sherman St., plans by D. K. McGillivray, E1316 2 Ave., 1 story, 74x100 ft. masonry warehouse and shop. $100,000. CD 5/8.

Wis., Wausau—FACTORY—D. J. Murray Co., Wausau, 2 story, 120x120 ft. steel, brick factory addn., concrete fdn. and floor.

Man., Winnipeg—WAREHOUSE—John Deere Plow Co., Ltd., 14 N. St. Dave Ave., warehouse. Approx. $300,000.

Man., Winnipeg—BAKERY—Fairfax Bread Co., Ltd., 28 Erin St., bakery. $175,000.

Man., Winnipeg—GARAGE—Redwood Motors, Ltd., 21 Main St., garage. $150,000.

▲ **Ont., Hamilton**—PLANT—Canadian Westinghouse Co. Ltd., 286 Sanford St., 4 story, bsmnt., concrete, brick plant for electronics division laboratory, incl. new plant to produce electrical apparatus, electronic equip. and supplies armed forces and defense program on Beach Rd. Approx. $10,000,000.

▲ **Ont., London**—PLANT—Canadian Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul, Minn., plans by Prack & Prack, 310 Main St. E., Hamilton, 125,000 ft. floor space PLANT. Approx. $2,000,000.

▲ **Que., Lonqueuil** — PLANT — Canadian Pratt-Whitney Aircraft Co. Ltd., 150 Lorne Ave., plans by E. C. Miller, 485 McGill St., Montreal, 480x480 ft. plant, 60x480 ft. office, structural steel brick, block, rein.-con. fdn. constr. Approx. $2,000,000. T. Pringle & Son, Ltd., 485 McGill St., Montreal, Que., engr.

UNCLASSIFIED

Calif., Palo Alto—ELECTRIC SYSTEM IMPRVS., etc.—City, City Hall, voted bonds, electric sys. imprvs., $500,000; gas sys. imprvs., $200,000. CD 4/20.

Minnesota — TRANSMISSION LINE — Northern States Power Co., 15 S. 5 St., 115 mi. transmission line between Granite Falls, Minn. and Sioux Falls, S. D. $100,000, Hibbert Hill, ch. engr. CD 1/11.

Minn., St. Paul—GAS MAINS—Northern States Power Co., 15 S. 5 St., Minneapolis, 100 mi. gas mains tributary in St. Paul, Hibbert Hill, c/o owner, ch. engr.

Miss., Raleigh—NATURAL GAS SYS.—City, voted bonds Apr. 30, Part 1, natural gas sys. $125,000, P. D. Gregory, Fort Worth National Bank Bldg., Fort Worth, Tex., consult. engr. CD 4/17.

▲ **Missouri**—RURAL DISTRIBUTION LINES—Laclede Electric Co-operative, Lebanon, rural distr. lines, sys. imprvs., Laclede, Webster and Wright Counties, $3,047,000. CD 11/27.

New Mexico—GAS LINES—Great Lakes Oil & Chemical Co., Farmington, natural gas gathering lines, San Juan Co. $175,000.

N. Y., Vestal—MOTEL—Community Motel, Inc., 160 St. Binghamton, motel, at Vestal and Bunn Hill Rds. $140,000.

N. C., Durham—ATHLETIC STADIUM—City, defeated bonds, athletic stadium, $185,000. CD 3/23.

Texas—RURAL DISTRIBUTION LINES—DeWitt County Electric Co-operative, Cuero, 80 mi. rural distr. lines and sys. imprvs., DeWitt Co. $305,000.

Tex., Lubbock—SWIMMING POOLS—City, City Hall, Proj. 1, 50x120 ft. rein.-con. swimming pool, $94,000; Proj. 2, 60x160 ft., rein.-con. swimming pool, $110,200. Parkhill, Smith & Cooper, 1414 Avenue J, consult. engrs. CD 8/10.

▲ **W. Va., Logan**—FIELD HOUSES, PLAYGROUND—Logan County Court, Court House, plans by Lewis E. Stettler, 926 6th Ave., Huntington, brick, block, field houses and playgrounds, $1,000,000.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 5, Massachusetts

STREETS AND ROADS

June 5, Massachusetts

LOW BIDDERS—HEAVY CONSTRUCTION

† **Stewart & Williams, Inc.,** and **T. W. Cunningham, Inc.,** Augusta, Me. Low Bidders. $770,700, rehabilitation Naval Air Facility, incl. roads, bldgs., sidewalks and services, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston 10, Mass. CD 4/2.

▲ **American Bridge Co.,** 1414 Statler Bldg., Boston, Mass., Low Bidder, $2,473,845, superstructure, hy. Boston Central Artery***C. J. Maney Co., Inc., 24 Dane St., Somerville, Mass., $1,118,065, substructure ***V. Barletta Co., 10 Whipple Ave., Roslindale, Mass., $468,825, decks of hy., installation snow-melting equip. on ramps, Boston Central Artery, MASSACHUSETTS, Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids May 15. CD 4/19.

CONTRACTS—BUILDINGS

George L. Hickey, Inc., 13 Spring St., Stamford, Conn., Contract Awarded, $772,990, McKinley SCHOOL addn., Knapp Hy., FAIRFIELD, CONN. Town Supt. Schools, Fairfield, Conn. CD 4/3, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 6, New York — June 8, Pennsylvania

STREETS AND ROADS

June 5, Maryland — June 6, New York

June 8, Pennsylvania — June 12, New Jersey

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Les Strong Constr. Co.,** Whitney Point, N. Y., Low Bidder, $141,571, 2 span I-beam bridge and approaches to carry County Road 10A and 40B across Owego Creek, Tioga Co.***Rhoades Constr. Co., Inc., 833 Front Ave., Salamanca, N. Y., $151,169, 2 span I-beam bridge and approaches carrying County Road 5 across Cayuta Creek, Chemung Co. ***Delma Eng. Corp., 1208 Wyatt St., New York 50, N. Y., $1,263,188, grade separation structures and approaches carrying Bronx River Parkway extension over Bruckner Blvd., Bronx Co., NEW YORK. Bureau Contracts & Accounts, Albany, N. Y. Bids May 16. CD 5/1.

▲ **Poirier & McLane Corp.,** 33 W. 42 St., New York, N. Y. Low Bidder, $1,840,618, Sect. 8B, of Route 4 Parkway 0.339 mi. from Route 28 to Galloping Hill Rd., incl. bridges at Galloping Hill Rd. Michigan Ave., Rahway Valley R.R. and Market St., Kenilworth, Union Co., NEW JERSEY, State Hy. Dpt., 1035 Parkway Ave., Trenton, N. J. Bids May 15. CD 4/24.

LOW BIDDERS—BUILDINGS

▲ **P. J. Roche & Romac Bldg. Corp.,** 712 Newbridge Rd., Bellmore, N. Y. Low Bidders, $556,987, grade SCHOOL impvts., Summit Lane, $607,370, addn., alterations to Gardiners Ave. SCHOOL, LEVITTOWN, N. Y. Bd. Educ., Union Free School Dist. 5, Levittown, N. Y. Bids May 11. CD 5/2.

▲ **D. M. W. Contr. Co., Inc.,** 2058 Fulton St., Brooklyn 16, N. Y. Low Bidder, $7,297,000, general constr. ***J. L. Murphy, Inc., 340 E. 44 St., New York 17, N. Y. $1,018,000 heating and ventilating***Herman H. Schwartz, Inc., 191 Fulton St., Brooklyn 1, N. Y., $435,000, electrical work***Eugene Duklauer, Inc., 215 E. 38 St., New York 16, N. Y., $1,264,164, plumbing for Throgs Neck HOUSES, Proj. NY 5-15, area bounded by Balcom and Randall Aves., E. 177 St., Calhoun, Dewey, Swinton, and Sampson Aves., Bronx Boro., NEW YORK, N. Y. New York City Housing Auth., 63 Park Row, New York 17, N. Y. Bids May 22. CD 5/4.

▲ **S. S. Silberblatt,** 23 W. 45 St., New York, N. Y. Low Bidder, $3,416,440, construct East Side AIR-LINES TERMINAL and Public Parking Garage, 37 to 38 Sts., First Ave., Manhattan Boro., NEW YORK, N. Y. Triborough Bridge & Tunnel Auth., at office of the Authority's Administration Bldg., Randall's Island, New York 35, N. Y. Bids May 22. CD 5/17.

CONTRACTS—BUILDINGS

▲ **Bethpage Downs Homes,** c/o Alwin Cassens, Jr., archt., 116-55 Queens Blvd., Forest Hills, N. Y. Owner Builds. Approx. $1,250,000, 82 one family HOUSES on tract, 5 Oyster Bay Rd., BETHPAGE, N. Y.

▲ **Birchwood Park Homes,** c/o Stanley H. Klein archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. Approx. $1,750,000, 155 one family HOUSES, on 35 acre tract, Bellmore Rd. and Hampstead Turnpike, EAST MEADOW, N. Y.

▲ **Orchard Park Ranch Homes,** c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. Approx. $1,000,000, 92 one family HOUSES on 25 acre tract, Hicksville Rd., south of Southern State Parkway, MASSAPEQUA, N. Y.

† **E. S. McCann & Son Inc.,** 630 Fifth Ave., New York 20, N. Y. Contract Awarded, $557,000 mine assembly PLANT at Naval Ammunition Depot, NOY 22675, Spec. 28715, EARLE, N. J. P. Wks. Officer, Third Naval Dist., 90 Church St., New York, 7, N. Y. Bids Apr. 10, awarded May 4. CD 3/27.

Lepar Constr. Co., c/o N. Naftali, archt., 31 High St., Newark, N. J. Owner Builds. $800,000, 41 one family HOUSES, on 9½ acre tract at Beekman Rd. and Fairview Ave., SUMMIT, N. J.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

STREETS AND ROADS

June 8, Georgia, Kentucky

June 13, Louisiana

BIDS ASKED—BUILDINGS

▲ **Fla., Orlando**—SCHOOL—B.A. 6/6—Orange Co. Bd. P. Instruction, Orlando, North Orlando High School $1,000,000. James Gamble Rogers II, Winter Park, Fla. archts. Extended date. CD 4/25.

▲ **Fla., Orlando**—SCHOOL—B.A. 6/6—Orange Co. Bd. P. Instruction, Orlando, Fla., South Orlando High School, $1,000,000. Extended date. James Gamble Rogers II, Winter Park, archts. CD 4/25.

▲ **Ga., Albany**—HOUSING—B.A. 6/7—Albany Housing Auth., 716 Society Ave., Albany, Project GA 23-3, 125 housing units, $1,000,000. Extended date. CD 5/15.

▲ **Ga., Griffin**—HOUSING—B.A. 6/7—Griffin Housing Auth., Griffin, 200 housing units, $1,600,000. Plans deposit $50. Poundstone, Ayers & Godwin, Bona Allen Bldg., Atlanta, Ga., archts. Extended date. CD 5/9.

▲† **Ky., Fort Campbell**—BARRACKS—B.A. 6/7—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, eight barracks, paving and sidewalks, $3,000,000. Plans deposit $15 refundable, Louis & Henry, Starks Bldg., Louisville, archts.

S. C., Abbeville — HOUSING — B.A. 6/7 — Abbeville Housing auth., Abbeville, 85 housing units. $850,000. Plans deposit $50. John J. Harte Co., 284 Techwood Dr. N. W., Atlanta, Ga., archt.

Tenn., Pulaski—HOUSING—B.A. 6/8—Pulaski Housing Auth., c/o Turner & Northington, archts., Medical Arts Bldg., Florence, Ala., 11-1, 80 housing units; Proj. 11-2, 45 housing units. $650,000. Plans deposit $40. Extended date. CD 12/22.

Fla., Daytona Beach—HOUSING—B.A. 6/12—Daytona Beach Housing Auth., Daytona Beach, 100 housing units for colored, South St. $900,000. MacDonough, Craig & Smead, Daytona Beach, archts.

▲ **Ga., Cordele**—HOUSING—B. A. 6/12—Cordele Housing Auth., 225 housing units, $2,000,000, Logan & Williams, Palmer Bldg., Atlanta, archts. Bid date changed. CD 5/17.

Ga., Gainesville—HOUSING—B.A. 6/12—Gainesville Housing Auth., Gainesville, 80 housing units for whites, $750,000. Plans deposit $50. Wm. J. J. Chase & Assocs., 140 Peachtree St., Atlanta, Ga., archts. CD 9/22/50.

▲ **Tenn., Johnson City**—HOUSING—B.A. 6/12—Johnson City Housing Auth., c/o Leland K. Cardwell, archt., 144½ E. Market St., Proj. 2-1 and 2-2, 300 housing units. $2,500,000. Plans deposit $100. CD 11/21/49.

Tenn., Fayetteville — HOUSING — B.A. 6/14 — Fayetteville Housing Auth., c/o John J. Harte Co., archt., 284 Techwood Dr., Atlanta, Ga., Proj. 14-1 and 14-2, 75 housing units. $700,000. Plans deposit $50.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **R. H. Wright & Son,** Fort Lauderdale, Fla. Low Bidder, $1,228,000, imprvs. at Key West Naval Air Station, KEY WEST, FLA. Dist. P. Wks., Office, P. O. Box 365, Naval Base, Charleston, S. C. Bids May 17. CD 4/23.

LOW BIDDERS—BUILDINGS

George A. Creed & Son, 1618 Sumter St., Columbia, S. C. Low Bidder, $519,936, HIGH SCHOOL, FORT MILL, S. C. York Co. Bd. Trustees, Rock Hills, S. C. Bids May 17. CD 5/2.

▲ **Jordan Contg. Co.,** Andrews Rd., Columbus, Ga. Low Bidder, $1,133,973, dairy PLANT, COLUMBUS, GA. Wells Dairies Co-operative, 2320-30 Wynnton Rd., Columbus, Ga. Bids May 16. CD 4/25.

Zaret Constr. Corp., 1901 West Ave., Miami Beach, Fla., Low Bidder, $957,989 West Orlando Colored High SCHOOL, ORLANDO, FLA. Orange Co. Bd. P. Instruction, Orlando, Fla. Bids May 18. CD 4/25.

† **West Constr. & Eng. Co.,** 716 N. Federal Hy., Fort Lauderdale, Fla. Low Bidder, $731,444, HOUSING, at Alabama Ordnance Depot, ANNISTON, ALA. South Atlantic Div., U. S. Eng., P. O. Bldg., Atlanta, Ga. Bids May 16. CD 4/11.

▲ **J. W. Bateson Co.,** Irwin-Keasler Bldg., Dallas, Tex. Low Bidder, $1,923,506, Project ALA 49-1, Robert E. Colley HOMES, incl. 224 units, GADSDEN, ALA. Gadsden Housing Auth., Gadsden, Ala. Bid May 18. CD 5/2.

Brice Building Co., P. O. Box 1028, Birmingham, Ala. Low Bidder, $572,881, DORMITORY-DINING HALL, SEWANEE, TENN. University of the South, Sewanee, Bids May 17. CD 4/16.

CONTRACTS—HEAVY CONSTRUCTION

† **W. L. Cobb Constr. Co.,** Decatur, Ga. Contract Awarded, $619,429, resurf. motor pool areas, FORT BENNING, GA. U. S. Eng., P. O. Box 889, Savannah, Ga. Bids May 14. CD 5/18, under LB.

CONTRACTS—BUILDINGS

▲ **Thompson & Street Co.,** Pineville Rd., Charlotte, N. C. Contract Awarded, $1,053,000. HOSPITAL, RALEIGH, N. C. State Hospitals Bd. Cntrol, R. P. Pierce, bus. mgr., Raleigh, N. C. Bids May 15. CD 5/23, under LB.

Brittain-Pattillo Co., Decatur, Ga. Contract Awarded, $920,638, 120 HOUSING UNITS for Colored, GAINESVILLE, GA. Gainesville Housing Auth., Gainesville, Ga. Bids Apr. 19. CD 4/26, under LB.

South Pacific Contractors, Inc., 859 Biscayne St., Miami Beach, Fla. Contract Awarded, $700,000. 11 story, 90x220 ft. garment mfg. PLANT, MIAMI FLA. Garment Center Co., c/o Watson, Touby & Weston, archts., 1395 N.W. 21 St., Miami, Fla.

Superior Home Builders, 964 E. 25 St., Hialeah, Fla. Owner Builds. $500,000, 2nd addn. to Springview Subdivision, 70 HOMES, MIAMI SPRINGS, FLA.

▲ **A. J. Simms Co.,** 501½ Franklin St., Tampa, Fla., Owner Builds. $5,000,000. 250 HOMES, Old Tampa Bay, TAMPA, FLA.

▲ **Louisville Gas & Electric Co.,** 311 W. Chestnut St., Louisville, Ky. Own Forces. $90,000,000. Cane Run Steam Generating POWER PLANT, LOUISVILLE, KY. Pioneer Eng Co., 231 LaSalle St., Chicago, Ill., consult. engr.

▲ **Seth E. Giem & Assoc.,** 801 Roland St., Memphis, Tenn. Contract Awarded. $2,068,000. general constr. 300 HOUSING units, PADUCAH, KY. Paducah Municipal Housing Comn., Paducah, Ky. CD 4/25, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 5, Wisconsin

STREETS AND ROADS

June 5, Wisconsin

June 6, Michigan

Wis., Rice Lake—B. A. 6/5—City, sewage treatment plant, $508,000. Davy Eng. Co., 502 Main St., La Crosse, engr. CD 3/18/49.

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—FACTORY, etc.—B.A. 6/6—Pioneer Paper Stock Co., Div. Container Corp. of America, 2600 N. Elston St., Chicago, Zone 47, factory and office. $1,000,000. Morton L. Pereira, 1000 W. Monroe St., Chicago 3, Ill., archt. CD 11/30/50.

Ill., Evanston—HOSPITAL—B. A. 6/6—Community Hospital, Simpson and Brown Sts., hospital, $900,000, Burnham & Hammond, 53 W. Jackson St., Chicago, Zone 4, archts. CD 1/15.

Mich., Caro—INFIRMARY—B.A. 6/6—State, A. N. Langius, dir., Bldg. Dpt., Lansing, 2 story, brick, steel, concrete infirmary, Caro State Hospital. $700,000. Plans deposit $25. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Zone 26, archts. CD 9/6/50.

Mich., Detroit—SCHOOL—B.A. 6/7—City, Bd. Educ., 1354 Broadway, 2 story, brick, concrete Thomas Edison Elementary School addn., 17045 Grand River, $700,000. J. Ivan Dise, 2613 Woodward St., archt. CD 8/25/44.

▲ **Mich., Pontiac** — HOUSING — B.A. 6/8 — Pontiac Housing Auth., Roy MacAfee, exec. dir., 56 buildings, 400 brick housing units, incl. maintenance and community bldgs., Crystal Beach Sect. $4,700,000. Plans deposit $75 refundable. Otis Winn, 528 Michigan Bldg., Detroit, Zone 26, archt. CD 3/14/50.

Ill., Franklin Park—WAREHOUSE—Bids Asked—Reserve Supply Co., 1529 S. Jefferson St., 1 story, brick, wood trusses, warehouse, near here. $500,000. Engineering Systems, 221 N. LaSalle St., Chicago, Zone 1, archts. CD 2/21.

SOON LETS CONTRACTS—BUILDINGS

▲ **Ill., Arlington Heights**—TRAINING SCHOOL—Owner c/o Edo J. Bello, archt., 8 S. Dearborn St., Chicago, Zone 3, soon lets contract, 2 story, 90,000 sq. ft. Training School for Priests. $1,000,000.

LOW BIDDERS—BUILDINGS

Sorenson-Gross Constr. Co., Flint, Mich. Low Bidder, $582,714. 2 story, brick, steel Gyles E. Merrill Elementary SCHOOL addn., FLINT, MICH. City, Joseph A. Anderson, secy., Bd. Educ., Flint, Mich. Bids May 8. CD 5/3.

CONTRACTS—HEAVY CONSTRUCTION

Lueck Constr. Co., 3610 W. Kiehnau Ave., Milwaukee, 9, Wis. Contract Awarded, $701,000, water filtration plant, CUDAHY, WIS., City, Cudahy, Wis. Bids Apr. 17. CD 4/26, under LB.

CONTRACTS—BUILDINGS

▲ **Stewart Constr. Co.,** Springboro Pike, Dayton, O. Contract Awarded. Approx. $1,500,000. 150 one

(Continued on page 70)

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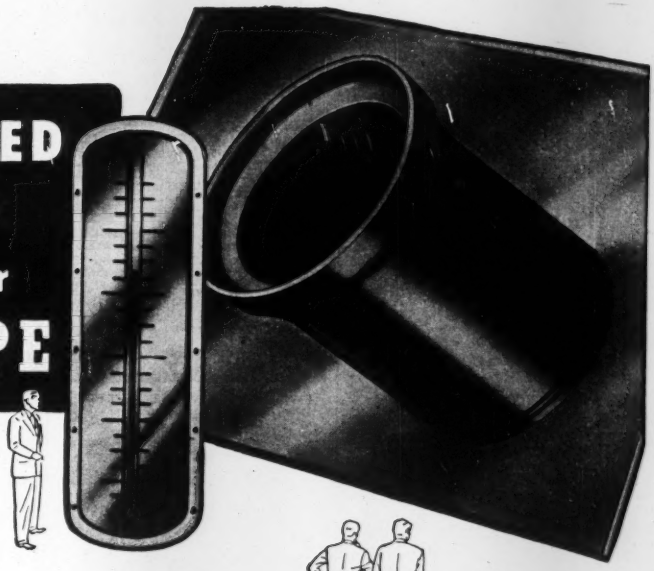

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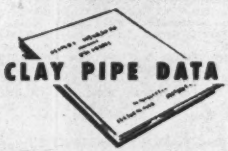

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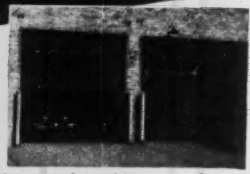

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(Continued from page 69)

story ranch type pre-fabricated HOMES in Dalia Dell plat, near Helke Rd., VANDALIA, O. Walter S. Carr, Inc., 26 W. Monument St., Dayton, O.

▲ **Bohn Aluminum & Brass Corp.,** 1400 Lafayette Bldg., Detroit, Mich. Own Forces. $2,500,000. modeling PLANT and machinery and equip., GREENSBURG, IND.

▲ **United Builders, Inc.,** 415 Glass Block, Marion, Ind. Owner Builds, $1,000,000, 125 HOMES in Northwest Homes Subdivision, MARION, IND.

▲ **B-W Constr. Co.,** 39 S. La Salle St., Chicago, 3, Ill., Contract Awarded, $3,035,000, 5 story 180 bed, 50x357 ft., HOSPITAL, CHICAGO, ILL. Sisters of the Resurrection Hospital, 8400 Talcott Ave., Chicago, 31, Ill. Bids May 10, awarded May 18. CD 5/21, under LB.

▲ **Ellington-Miller Co.,** 25 E. Jackson St., Chicago 4, Ill. Contract Awarded, $2,000,000. freight TERMINAL, CHICAGO, ILL. Atchison, Topeka & Santa Fe R.R., 80 E. Jackson St., Chicago, Ill. Chas. O. Coverley, 80 E. Jackson St., Chicago, 4, Ill., archts.

Veem Constr. Co., 2424 Walter St., Northbrook, Ill. Owner Builds, $700,000, 64 RESIDENCES, NORTHBROOK, ILL. Whalley & Gould, 3131 Lincoln St., Chicago, 4, Ill., archts. Awarded May 10.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES
June 8, Minnesota, North Dakota

STREETS AND ROADS
June 6, Kansas
June 8, Minnesota, North Dakota
June 12, 13, Texas

▲ **Kansas**—GAS LINES—Bids Asked—Northern Natural Gas Co., Acuila Court Bldg., Omaha 1, Neb., 370 mi. 4- to 26-in. gas lines as segments of Hugoton Field gathering sys., network sys. $12,000,000.

BIDS ASKED—BUILDINGS

▲ **Tex., San Antonio**—HOUSING—B.A. 6/7—San Antonio Housing Auth., 419 S. St. Marys St., Tex. 6-7, 275 housing units. $2,600,000. Plans deposit $25. CD 5/16.

▲ **Tex., Fort Hood**—HOUSING—B.A. 6/13—U. E. Eng., 606 Santa Fe Bldg., Galveston, construct, manage, finance, 199 duplexes, $2,384,000; 33 triplexes, $792,000; 71 single family housing units, $568,000, Inv. No. Eng. 41-243-51-56. Extended date. Wyatt C. Hedrick, Fort Worth Natl. Bank, Fort Worth, Tex. archt.-engr. CD 5/3.

▲ **Tex., Houston**—PLANT—Bids Asked—Shell Oil Co., Shell Bldg., benzine plant. $12,330,000. CD 5/17.

▲ **Tex., Midland**—PLANT, etc.—Bids Asked—Phillips Petroleum Co., Bartlesville, Okla., gasoline plant, $4,000,000; natural gasoline products pipe line, $245,000; 10 in. crude oil pipe line into fields of Midland and Glasscock Counties, $200,000. CD 5/16.

LOW BIDDERS—HEAVY CONSTRUCTION

†▲ **C. F. Lytle Co.,** 205 Insurance Exchange Bldg., Sioux City, Ia. Low Bidder, $2,791,610. Snake Creek embankment, Garrison Dam Proj., near Riverdale, Inv. 34, NORTH DAKOTA. U. S. Eng., Fort Lincoln, Box 300, Bismarck, N. D. Bids May 11. CD 4/4.

City, City Hall, Oklahoma City, Okla., rejected bids May 8, sanitary sewer, Contr. No. 1 2B, OKLAHOMA CITY, OKLA. L. B. $907,854. CD 5/15, under LB.

▲ **Worth Constr. Co.,** P. O. Box 531, Fort Worth, Tex., Low Bidder, $1,025,636, roadbed tr., flexible base, shoulders and c. conc. pavement 11.633 mi. Hy. U. S. 1 (Proj. FI 113 (15) Hill and McLennan Counties***Ernest Loyd, P. O. Box 1120, Fort Worth, 1, Tex., $455,176, flexible base, hot b. conc. pavement 8.343 mi. Hy. U. S. 81 Proj. F 122 (4), FI 122 (5), Hill Co. $535,526, grading, structures 15.633 mi. SH 155. Proj. F 1090 (3). Upshur Co. ***Public Constr. Co., P. O. Box 380, Denton, Tex. $216,112, hot mix b. conc. pavement 17.502 mi. Hy. U. S. 75, Proj. F 483 (6), Freestone Co.

Robert E. McKee General Constr., Inc., P. O. Drawer 562, El Paso, Tex., $393,001, est. $215,000, grading, c. conc. pavement hot mix asph. pavement and reconstruct headwalls and install auto dr. gate 0.746 mi. Hy. U. S. 80, Proj. U 439 (2), El Paso Co.***

R. C. Buckner, P. O. Box 609, Jacksonville, Tex., $232,688, est. $175,000. flexible base, two course surf. tr. 15.017 mi. Hy. U. S. 96, Proj. F 327 (11) and (12), Sabine and San Augustine Counties***

Fitzgerald & Bradshaw, Inc., Donna, Tex., $123,677, reconstruct, grading, structures, flexible base, asph. surf. tr. and street id'n. 4.585 mi. Hy. SH 107, Proj. C 342-1-9, Hidalgo Co.

John F. Buckner & Son, P. O. Box 76, Cleburne, Tex., $66,534, grading, structures, surf. 4.17 mi. Hy. FM 1487, Proj. R 1177-1-2, Red River Co.***

Ned B. Hoffman, 637 Fort Worth Club Bldg., Fort Worth, 2, Tex., $109,314, seal coat 103.648 mi. various highways, Proj. C 162-8-12, etc., Navarro, Ellis and Kaufman Counties***Cage Bros., 607 Travis Bldg., San Antonio, Tex., $143,541, flexible base, two course surf. tr. 7.258 mi. Hy. US 290, Proj. F 1033 (4), Lee Co.***Wesley Hall, Route 1, Box 260, Beaumont, Tex., $171,632, grading, wid'n. structures, overpass, flexible base and asph. pavement 0.733 mi. Hy. US 67 and 84, Proj. F 583 (11), Brown Co.

Dodd & Wedegartner, Inc., San Benito, Tex., $230,921, grading, flexible base, and asph. surf. 5.976 mi. Hy. FM 1595, Proj. S 1511 (1), Cameron Co.***

Ivan Dement, Box 1787, Amarillo, Tex., $88,007. grading, base, surf. 8.108 mi. Hy. FM 293, Proj. S 1039 (2), Carson Co.***J. W. Perry, 501 Insurance Bldg., San Antonio, Tex., and R. B. Butler, Inc., P. O. Box 1471, Bryan, Tex., $66,886, grading, base and surf. 5.34 mi. Hy. FM 954 and 1293, Proj. R 1265-1-1, Fayette Co.; $154,575, grading, base and surf. 14.761 mi. Hy. FM 1369, Proj. R 1400-1-1, Grimes Co.***R. W. McKinney, P. O. Box 190, Nacoadoches, Tex., $89,343. wid'n., strengthening base and 2 course surf. tr. 4.84 mi. Hy. SH 34, Proj. C 174-1-16, Hunt Co.***Campbell & Kay, P. O. Box 836, Tyler, Tex., $81,582, grading, base, surf. 3.46 mi. Hy. FM 1273, Proj. R 931-2-1, Houston Co., TEXAS. State Hy. Comn., Austin, Tex. Bids May 16. CD 4/26, 5/1.

▲ **Austin Bridge Co. and Austin Road Co.,** P. O. Box 1590, Dallas 1, Tex. Low Bidder, $1,263,049, grading, storm sewers, c. conc. 1.136 mi. Hy. U. S. 75, Proj. U-515 (11), Dallas Co.***South Texas Constr. Co., P. O. Box 3152, Corpus Christi, Tex., $506,708, wid'n. structures, reconstruct and wid'n. base and pavement 15.337 mi. Hy. U. S. 77, F 913 (6), Kennedy Co.***Austin Road Co., P. O. Box 1590, Dallas 1, Tex., $468,918, grading, structures, surf. 7.338 mi. Hy. U. S. 82, Proj. F 380 (6) and 315 (8), Lamar and Red River Counties***John F. Buckner & Sons, P. O. Box 76, Cleburne, Tex., $148,827, grading, structures, base, surf. 4.729 mi. Hy. FM 1094, Proj. S 84 (2), Fort Bend Co.

Reynolds & Huff, Tyler, Howard Bros., Madisonville & R. B. Butler, Inc., Bryan, Tex., $331,892, flex. base, one course surf. tr. 8.236 mi. Hy. US 80, Proj. F-21 (3), Gregg and Harrison Counties*

Worth Constr. Co., P. O. Box 531, Fort Worth, Tex., $160,557, wid'n. c. conc. pavement, hot mix b. conc. pavement 1.388 mi. Hy. U.S. 81, F 113 (14), Hill Co.*Harry Campbell, 2854 Berry St., Fort Worth 4, Tex., $132,338, est. $125,000. partial grading, flexible base, 2 course surf. tr. 8.952 mi. Hy. SH 199, F 1041 (2), Jack Co.***Heldenfels Bros., Rockport, Tex., $73,086, grading, structures, flexible base, surf. 9.289 mi. Hy. FM 738 and 1540, Proj. RV-1087-2-1, Jim Wells Co.

Cooper & Woodruff, 1203 Dallas Natl. Bank Bldg., Dallas, Tex., $105,125, grading, structures, base, two course surf. tr. 6.371 mi. Hy. SH 117,C 355-1-15, Lipscomb Co.***Dew Constr. Co., Inc., P. O. Box 641, Tyler, Tex., $65,707, base and surf. 7.321 mi. Hy. FM 1393, Proj. R 1288-1-2, Navarro Co. ***D. & H. Constr. Co., P. O. Box 7053, Dallas 9, Tex., $77,508, seal coat 60.889 mi. Hy US 80, S.H. 24, U.S. 77, S.H. 78 and Loop 12, Proj. C 95-1-2, etc., Dallas, Collins and Denton Counties; $56,475, seal coat 53.277 mi. Hy U.S. 59, Proj. C 86-5, 6, 7, 8, 9 and 10, 7, 9, 9, 9, 9 and 10, Duval and Jim Hogg Counties; $54,420, seal coat 94.674 mi. Hy. SH 21, U.S. 84, U.S. 59, U.S. 190, U.S. 287, SH 146, SH 204, Proj. C 118-8-17, etc., Nacogodoches, Shelby, San Jacinto, Houston and Polk Counties.

Howard Bros., Madison and **R. B. Butler, Inc.,** Bryan, Tex., $113,872, grading, structure, base, surf. 8.184 mi. Hy FM 1254, Proj. R 1390-3-1, Wood Co.***

J. W. Perry, 501 Insurance Bldg., San Antonio, Tex., and **R. B. Butler, Inc.,** P. O. Box 478, Bryan, Tex., $94,728, grading, structures 9.45 mi. Hy. FM 154, Proj. S 529 (3), Fayette Co.***Schwope Bros., 6633 W. Commerce St., San Antonio, Tex., $95,112, seal coat 84.385 mi. Proj. C 66-4-12, etc., Moore, Carson, Gray, Hartley, Sherman, Htuchinson and Ochiltree Counties***Cage Bros., San Antonio, Tex., $377,505, grading, structures, flexible base, 2 course surf. tr. 8.012 mi. Hy. U.S. 290, Proj FI 425 (10) and (11). Sutton and Kimble Counties, TEXAS. State Hy. Comn., Austin, Tex., Bids May 15. CD 4/26, 4/27 and 5/1.

LOW BIDDERS—BUILDINGS

Bd. Educ., Dr. A. C. Gilmer, clk., Bemidji, Minn. $875,000 bonds defeated, contract canceled. grade school and Lincoln Grade School addn., BEMIDJI, MINN. C. A. $620,000. CD 5/1 Under CA.

▲ **Greenhaven, Inc.,** Bd. Directors, R. T. Sprague, pres., Hibbing, Minn. rejected bids Apr. 20, 206 dwellings, HIBBING, MINN. L. B. $2,777,993. CD 5/2 under LB.

▲ **St. Paul Housing & Redevelopment Auth.,** 1745 City Hall and Court House, St. Paul, Minn. cancelled bids to have been opened May 22, one hundred and four bldgs., 418 dwelling units, Otto Bremer Homes between Hudson Rd. and east 3 St. west of White Bear Ave., ST. PAUL, MINN. $4,000,000. CD 4/17.

† **Walden, Fulton & Payne,** 114 N. College Ave., Lubbock, Tex. Low Bidder, $758,916. CHANGE HOUSE, FIRE STATION, and addnl. AUXILIARY bldgs. in Pantex Plant, Inv. No. 291-51-99, AMARILLO, TEX. U. S. Atomic Energy Comm., Los Alamos, N. M. Bids May 15. CD 4/3.

† **General Electric Co.,** 650 17 St., Denver, Colo. Low Bidder, $799,500, furnishing, installing two 18,950 kva. vertical-shaft GENERATORS for Alcova Power Plant, Kendrick Proj., Spec. DC-3357, WYOMING. Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids May 15. CD 4/18.

† **Walden, Fulton & Payne,** Box 628, Lubbock, Tex., Low Bidder. $758,917, est. $750,000-$1,000,000. FIRE STATION, CHANGE HOUSE, new bldgs., new and modified auxiliary bldgs., LOS ALAMOS, N. M. U. S. Atomic Energy Comm., Los Alamos, N. M. Silas Mason Co., Pantex Plant, Amarillo, Tex., engr. and archt.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Cities Service Gas Co.,** First National Bank Bldg., Oklahoma City, Okla., Own Forces, $982,610, 56 mi. natural gas pipe lines, Sedgwick, Harvey and Labette Counties; $4,204,000, compressor station, KANSAS, OKLAHOMA AND MISSOURI. CD 2/26.

▲ **Kohler, Stover & Ivey and Wyche & Hammond,** 7635 Bryn Mawr St., Dallas, Tex. Contract Awarded. $2,282,200. power house, near Gore, Inv. No. CIVENG 34-066-51-60, OKLAHOMA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Apr. 20, awarded May 16. CD 4/30, under LB.

▲† **Texas Constr. Co.,** Box 1384, Dallas, Tex. Contract Awarded, $2,777,240, conversion to locks, Colorado River Flood gates, Inv. No. CIVENG 41-243-51-87, TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., Bids Apr. 24, awarded May 21. CD 5/2, under LB.

▲† **Del E. Webb,** Box 2056, Amarillo, Tex. Contract Awarded. $6,611,130. addnl. airmen's dormitories, Facilities "A", Inv. No. Eng 34-066-51-30, AMARILLO, TEX., U. S. Eng., Box 61, Tulsa 2, Okla., Bids May 8, awarded May 17. CD 5/15, under LB.

▲ **E. B. Darby & Co.,** 425 State St., Pharr, Tex. Contract Awarded. $1,453,987, est. $100,000. asph. paving various streets, McALLEN, TEX. City, McAllen, Tex. Bids May 15. CD 5/7.

CONTRACTS—BUILDINGS

▲ **Knutson Constr. Co.,** 2233 Commerce Bldg., Dallas, Tex., Contract Awarded. $1,225,700, est. $1,200,000. 150 DWELLING units for total 25 two story bldgs., rein.-con. footings and grade beam and slab fdn., brick veneer, cement asb. siding, etc. BEAUMONT, TEX., Beaumont Housing Auth., Beaumont, Tex., Bids May 9, awarded May 19. CD 5/15, under LB.

▲ **T. C. Bateson Constr. Co.,** Irwin Keasler Bldg., Dallas, Tex. Contract Awarded. $2,399,200, HIGH SCHOOL for Whites; $1,522,900, HIGH SCHOOL for Negroes, GALVESTON, TEX., Galveston Independent School Dist., Galveston, Tex. Bids May 15, awarded May 19. CD 5/22, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 13, 14 California
STREETS AND ROADS
June 13, 14 California

BIDS ASKED—BUILDINGS

▲ **Wash., Spokane**—HOSPITAL—B.A. 6/15—Deaconess Hospital, 733 4 St., 7 story hospital addn. $1,000,000. N. Thompson, Hutton Bldg., Spokane, archts. CD 3/23/59.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Carbon Bros. & Black,** 3430 N. Cook St., Spokane, Wash. Low Bidder. basic, $1,061,022; with alternates $1,254,704, barracks and mess facilities Fairchild Air Force Base, Eng 45-164-51-4, SPOKANE, WASH. U. S. Eng. City-County Airport, Walla Walla, Wash. Bid May 16. CD 5/3.

LOW BIDDERS—BUILDINGS

▲ **Steed Bros.,** Box 350, Alhambra, Calif., Low Bidder, $1,769,400, est. $1,000,000, Muir Junior high SCHOOL, BURBANK, CALIF. Burbank Unified School Dist., 245 E. Magnolia St., Burbank, Calif. Bids May 15. CD 5/4.

▲ **Williams & Burrows, Inc., and Carl N. Swenson,** 10 California Dr., Burlingame, Calif. Low Bidder, $3,447,000 general contract***Chas. A. Langlais,** 474 Bryant St. San Francisco, Calif., $454,864 electrical work***Luppen & Hawley, Inc.,** 3126 "J" St., Sacramento, Calif., $899,585, mechanical combination; $157,292, plumbing; heating, ventilating, air conditioning, $760,856, for HEADQUARTERS BLDG., for Dpt. Motor Vehicles, SACRAMENTO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids May 15. CD 4/26.

CONTRACTS—HEAVY CONSTRUCTION

▲† **General Electric Co.,** River Rd., Schenectady, N. Y. Contract Awarded. $2,357,596, design, mfg. and installation three 15,800-kva generators for Alberi Falls Power Plant, Priest River, Inv. No. CIVENG 51-43, IDAHO U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Apr. 12. CD 4/17, under LB.

▲ **J. G. Watts Constr. Co.,** Builders Exchange Bldg., Portland, Ore. Contract Awarded. $1,200,000. remodel enlarge STORE, construct quarter-block, 5 story bldg. PORTLAND, ORE. J. J. Newberry Co., Building Bldg., Portland, Ore. Bids May 8, awarded May 17. CD 4/20.

† **Newport News Shipbuilding & Dry Dock Co.,** Newport News, Va. Contract Awarded. $1,629,625. three 74,000 hp. hydraulic turbines for Folsom Power Plant, Central Valley Proj., Spec. DS 3344, CALIFORNIA. Bureau of Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Awarded May 14. CD 4/19, under LB.

▲ **Alex Robertson Co.,** 14433 S. Paramount St., Paramount, Calif. Contract Awarded. $620,000, Div. 1, installing 82,000 ft. 30 in. natural gas pipe line from 104 and Crenshaw Sts. to Sunset Blvd., Inglewood***Engineers Ltd. Pipeline Co.,** 5901 Anaheim-Telegraph Rd., Los Angeles, Calif., $260,000, installing 38,500 lin. ft. 30 in. pipe between Sunset Blvd., Sullivan Canyon to Burbank, Lindsay***J. E. Young Pipe Line, Inc.,** 931 E. Rosecrans St., Los Angeles, Calif., $376,000, 108,000 lin. ft. pipe from Simi to east bank of Santa Clara River at Saticoy, CALIFORNIA. Southern California Gas Co., 810 S. Flower St., Los Angeles, Calif., Grand total $1,256,000. Awarded May 14.

CONTRACTS—BUILDINGS

▲ **Leland McArthur & Assocs.,** 900 S. 5 St., Las Vegas, Nev. Contract Awarded. $2,700,000, construct, manage and finance 300 APARTMENT UNITS at Naval Air Base, WHIDBEY ISLAND, WASH. P. Wks. Div., Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids Apr. 27. CD 5/2, under LB.

▲† **Trewhitt, Shields & Fisher,** 926 Paseilel St., Fresno, Calif. Contract Awarded, $1,383,000. quartermaster COLD STORAGE PLANT at Alameda Transit Depot, Inv. 134, ALAMEDA, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Awarded May 16. CD 5/15, under LB.

▲ **Grandview Bldg. Co.,** 470 S. Beverly Dr., Beverly Hills, Calif. Owner Builds. $2,028,000. 197 stucco DWELLINGS in Tract 17034, BURBANK, CALIF. Allen Siple, 9507 Santa Monica Blvd., Beverly Hills, Calif., archt.

Shumaker-Evans Constr. Co., 354 S. Springs St., Los Angeles, Calif. Contract Awarded, $616,000. 56 DWELLINGS, Woodruff and Cecelia Sts., DOWNEY, CALIF. Avondale Development Corp., 354 S. Spring St., Los Angeles, Calif. Wm. Bray, 5670 Wilshire Blvd., Los Angeles, Calif., archt.

▲ **Williams & Burrows, Inc. and Carl N. Swenson,** 10 Calif. Dr., Burlingame, Calif. Contract Awarded. $3,359,000. 5 story, rein.-con. HOSPITAL on El Camino Real, HILLSBOROUGH, CALIF. Peninsula Hospital Dist., Hillsborough, Calif. Awarded May 15. CD 5/17, under LB.

Pacific Iron & Steel Co., 11633 S. Alameda St., Los Angeles, Calif., contract awarded. $600,000, design and construct, 100,000 sq. ft. steel frame heavy machinery PLANT, INGLEWOOD, CALIF. North American Aviation, Inc., 5601 W. Imperial St., Los Angeles, Calif.

▲ **Allis-Chalmers Mfg. Co.,** 1126 S. 70 St., Milwaukee, Wis. Contract Awarded. $1,188,242. furnish steam TURBINE GENERATOR appurtenances for Light and Power Dpt., PASADENA, CALIF. City, City Hall, Pasadena, Calif. Awarded May 15. CD 8/7/45.

Biltwell Constr. Co., 4745 Geary Blvd., San Francisco, Calif. Contract Awarded. $643,377. Patrick Henry Elementary SCHOOL, 18 and Kansas Sts., SAN FRANCISCO, CALIF. City and San Francisco Co., City Hall, San Francisco, Calif. Awarded May 17. CD 5/4, under LB.

▲ **Avalon Properties Co.,** 109 E. 236 St., Wilmington, Calif. Owner Builds. $2,111,100. 250 stucco DWELLINGS, Main St. and Sepulveda Blvd., WILMINGTON, CALIF. L. H. Gowdy, 2185 Huntington Dr., San Marino, engr. & Norwood & De Longe, 1447 San Marino Ave., San Marino, archts. CD 5/15.

ALASKA

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **M. B. Contg. Co.,** Anchorage, Alaska, Low Bidder, $1,785,840, est. $2,095,943, 200x800 ft. station warehouse, with 3,000 ft. spur trackage, Inv. No. S 95-507-51-44, Elmendorf Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle 4, Wash. Bids May 18. CD 5/3.

▲† **Peter Kiewit Sons Co.,** 1300 Aloha St., Seattle, Wash., Low Bidder, $3,671,313, est. $5,512,535, 300x300 ft. structural steel hangar on rein.-con. fdn., Inv. No. S 95-507-51-41, Eielson Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle, 1 Wash. Bids May 16. CD 5/1.

▲† **Peter Kiewit Sons Co.,** 1300 W. 45 St., Seattle, Wash. Low Bidder $1,462,176, est. $838,908, field maintenance and artillery shop at Ladd Air Force Base, special maintenance shop and ordnance shop at Eielson Air Force Base, all 1 story, masonry constr., S95-597-51-8, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids May 15.

LOW BIDDERS—BUILDINGS

▲† **Nelse Mortensen & Co., Inc.,** 1021 Westlake Ave. N., Seattle, Wash. Low Bidder, $2,880,000, est. $2,888,607, BUILDINGS, UTILITIES for Alaska Communications System at Harding Lake, Big Delta, Johnson River, Tok Junction, Northway, Glennallen and Sheep Mountain, S95-507-51-57, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids May 16. CD 5/1.

The Alaska Railroad, Dpt: Interior, Anchorage, Alaska, rejected bids Apr. 30, general repair SHOP, ANCHORAGE, ALASKA. L. B. $844,332. CD 5/7, under LB.

▲† **Nelse Mortensen & Co., Inc.,** 1021 Westlake Ave. N., Seattle, Wash. Low Bidder, $1,487,370. 75 DWELLING units in 2 story frame bldgs., with combination community bldg., and boiler plant, etc., FAIRBANKS, ALASKA. Alaska Housing Auth., 11 and I Sts., Anchorage, Alaska. Bids May 15. CD 4/11.

▲† **J. C. Boespflug Constr. Co. and S. Birch & Sons,** 1912 4 Ave., S. Seattle 4, Wash. Low Bidders, $3,167,262. 5 organizaitonal maintenance SHOP bldgs. and exten. 1 bldg., Inv. No. S95-7 7-51-78, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 4, Wash. Bids May 15. CD 4/27.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Peter Kiewit Sons Co.,** 1300 Aloha St., Seattle, Wash. Contract Awarded. $5,512,000. 20 type A and 22 Type C 8 family row type quarters, Inv. No. S95-**507-51**-71, Ladd Air Force Base, ALASKA. U. **S. Eng.**, New Washington Hotel, Seattle 1, Wash. **Bids** Apr. 20, Awarded Apr. 28. CD 4/26, under **LB.**

▲† **Kuney-Johnson Co.,** 235 9 Ave. N., Seattle, Wash., Contract Awarded. $1,120,000, est. $1,098,429, gymnasium and indoor training facility at Ladd Air Force Base and at Eielson Air Force Base, Inv. No. S95-507-51-76, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash., Bids Apr. 24, awarded May 9. CD 4/30, under LB.

† **J. H. Pomeroy & Co.,** 333 Montgomery St., San Francisco, Calif. Contract Awarded. $541,000, est. $454,436, one each 120x220 ft. general warehouse at Ladd and Eielson Air Force Bases, Inv. No. S95-507-51-55, ALASKA. U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Apr. 19, awarded May 7. CD 4/26, under LB.

▲† **J. H. Pomeroy & Co., Inc.,** 333 Montgomery St., San Francisco, Calif., Contract Awarded. $4,793,966, est. $5,438,963, 23 8-family row-type quarters, at Ladd Air Force Base and 14 at Eielson Air Force Base, Inv. No. 51-93. ALASKA. U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Apr. 10, awarded Apr. 27. CD 4/16, under LB.

CONTRACTS—BUILDINGS

▲† **Morrison-Knudsen Co., Inc., and Peter Kiewit Sons Co.,** 1300 Aloha St., Seattle, Wash., Contract Awarded. $1,949,000, est. $1,890,618, indoor training FACILITY BLDG., Inv. No. S95-507-51-80, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 24, awarded May 7. CD 4/30, under LB.

▲† **J. H. Pomeroy Co., Inc.,** 333 Montgomery St., San Francisco, Calif., Contract Awarded. $959,000, est. $889,184, post engineer FACILITIES and PAINT and DOPE STORAGE BLDG., Inv. 51-50. FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 12, awarded May 7. CD 4/18, under LB.

▲† **Valle-Sommers Constr. Co.,** 407 3 Ave. W., Seattle, Wash. Contract Awarded. $2,907,717, est. $2,444,932, engineer, quartermaster, signal repair, combined and freight equip. SHOPS, Inv. No. S95-507-51-70, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash., Bids Apr. 27, awarded May 7. CD 5/1, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Hamilton—B.A. 6/7—City, City Hall, Mountain trunk sewer, on Contracts 4A, 8x8½ ft., 2,776 ft. long, and subsidiary sewers; Contr. 4B, 7x7½ ft. tunnel sewer, 2,879 ft. long and auxiliary works. $3,500,000 (entire job). Plans deposit $50. CD 4/25/50.

BIDS ASKED—BUILDINGS

▲ **Alta., Edmonton**—TELEPHONE—B.A. 6/10—Deputy Minister, Alberta Govt. Telephone, C.P.R. Bldg., Edmonton, telephone bldg., 9718 107 St. Approx. $1,250,000. Rule, Wynn & Rule, 11424 Jasper Ave., archts. CD 1/23.

SOON LETS CONTRACT—BUILDINGS

Ont., Toronto—FACTORY—Gair Co. of Canada Ltd., 372 Bay St., soon lets contract 1 story, 147x587 ft., concrete block, steel, wood factory addn. $600,000. David Shepherd & R. W. Powell, 57 Bloor St. W., Toronto, Ont., engrs. CD 7/9/47.

CONTRACTS—HEAVY CONSTRUCTION

Standard Gravel & Surfacing Of Canada Ltd., 5340 First St. S. W., Calgary, Alta. Contract Awarded. $538,208, Trans-Canada Hy. work between Bassano and Brooks; **New West Constr. Co.,** 10480 111 St., Edmonton, Alta., $763,596, Trans-Canada Hy. between Brooks and Suffield, ALBERTA. Dpt. P. Wks. Parliament Bldgs., Edmonton, Alta. Awarded May 17.

Frankel Corp. Ltd., Don Roadway, Toronto, Ont., Contract Awarded. Approx. $750,000, 800 tons structural steel for 6 buildings at R.C.A.F. Base, CAMP BORDEN, ONT. Defense Constr. Ltd., 441 Queen's Quay W., Toronto, Ont. Bids Apr. 20. CD 4/13.

▲ **P. Baillargeon & Co.,** 7140 Park Ave., Montreal, Que., Contract Awarded, $366,311, installing water and sewer lines***S. Sicoitt & Sons Ltd.,** 1906 Van Horne Ave., Montreal, Que., $402,311, installing water and sewer lines various streets***Miron Brothers Ltd.,** 2201 Cote St. Michel, Montreal, Que., $400,000, concrete sewer pipe, VILLE JACQUES CARTIER, (POSTAL DIST. MONTREAL), QUE. Municipality, Mille Jacques Cartier, Que. Grand total $1,168,624. CD 12/12.

CONTRACTS—BUILDINGS

Commonwealth Constr. Co. Ltd., 700 Taylor St., Vancouver, B. C. Contract Awarded. $671,746, rein.-con. INSTITUTE addn., incl. administrative offices, outpatients department, X-ray therapy section, lecture hall, medical records department, VANCOUVER, B. C. B. C. Cancer Institute, 11 and Heather Sts., Vancouver, B. C. Awarded May 17. CD 11/13/50.

Pearson Constr. Co. Ltd., 1019 Erin St., Winnipeg, Man. Contract Awarded. Approx. $550,000, 300x400 ft., rein.-con. brick WAREHOUSE and HEAD OFFICE Notre Dame and Dublin Ave., WINNIPEG, MAN. John Deere Plow Co. Ltd., Princess St., Winnipeg, Man. CD 5/18.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Australia, North Queensland—B.A. 9/3—Dpt. Co-Ordinator General of Pub. Wks., Box 185C, G.P.O. Brisbane, pressure tunnel and surge tank for Tully Falls Hydro-electric project. Extended date. CD 2/21.

(Proposal Advertisements see pp. 72 to 74)

OFFICIAL PROPOSALS

Bids: June 19, 1951

Intercepting Storm Sewer

Sealed bids will be received by the Mayor and Council of the Borough of Butler, Morris County, New Jersey, in the Borough Hall, Butler, New Jersey, until eight o'clock P.M., Daylight Saving Time, on June 19, 1951 to furnish all machinery, labor and materials for the construction of an intercepting storm sewer on Roosevelt Avenue and Northwestern Avenue and over a private right-of-way to the Pequannock River, of approximately 1750 linear feet of reinforced concrete pipe, including 1370 feet of 42 inch reinforced concrete pipe, 380 linear feet of 30 inch reinforced concrete pipe, catch basins at intake chamber, inlets, manholes, concrete headwalls, rippraping, etc., in accordance with plans and specifications prepared by Newell C. Harrison, Borough Engineer, on file in the office of the Borough Clerk or the office of the Engineer, 98 High Street, Butler, N. J.

Instructions to bidders, specifications, proposal blanks and plans and profiles may be secured from John F. Bormuth, Borough Clerk, or at the office of the Engineer, upon payment of Five ($5.00) Dollars, which will not be refunded.

A certified check for ten per cent (10%) of the total cost of the work, payable to the Collector of the Borough of Butler, must accompany each bid as a guaranty of good faith on the part of the bidder to insure proper execution of the contract and bond.

Should the bidder to whom the contract is awarded by the Borough Council, fail, upon proper notice being given him, to execute said contract and furnish the required bond as stated in the specifications, then the amount of the certified check will be forfeited to the Borough of Butler.

All bids should be submitted in a sealed envelope and marked "Bids for Intercepting Storm Sewer" and presented to John F. Bormuth, Borough Clerk, Butler, New Jersey, not later than the time specified.

The Borough Council reserves the right to reject any or all bids.

John F. Bormuth,
Borough Clerk, Butler, N. J.

Bids: June 20, 1951

State Office Building

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS
AND HIGHWAYS
STATE HOUSE ANNEX
CONCORD, NEW HAMPSHIRE
NOTICE TO CONTRACTORS

Sealed proposals will be received at this office until 2 o'clock P.M. Daylight Saving Time on the 20th day of June, 1951 for the construction of a new State Office Building in Concord, New Hampshire.

The project consists of a 4-story building with basement and two 2-story wings. Construction is of reinforced concrete; Heating and Ventilating Work, Plumbing and Electrical Work and Fixtures are included. The steam for heating will come from a central heating plant.

A schedule of the minimum wages for all labor classifications as determined by the N. H. Commissioner of Labor, in accordance with Chapter 214 of the Revised Laws, is included in the "Information for Bidders."

Plans and specifications may be seen at the office of the Commissioner, Department of Public Works and Highways, the office of the Architects, 998 Farmington Avenue, West Hartford, Connecticut, at the office of the Associated General Contractors of N. H., 3 Pleasant Street, Concord, New Hampshire, at the office of the F. W. Dodge Corp., Park Square Building, Boston, Mass. and at the office of Gaineys' Construction Newsletter, 88 State Street, Boston, Mass. Plans, specifications and the proposal forms may be obtained at the office of the Commissioner, Department of Public Works and Highways in Concord, N. H. and at the Office of the Architects in West Hartford, Conn. upon the deposit of $50.00 for each set taken. (Cash will not be accepted; checks should be made payable to F. D. Merrill, Commissioner). The full deposit will be refunded to Contractors who submit a bona fide bid on June 20, 1951 if the documents are returned in good condition within ten (10) days of the date of opening bids; $25.00 will be refunded to non-bidders. No incomplete sets will be distributed. Sub-bidders must file duplicate bids with the Architects not later than twenty-four (24) hours prior to the time set for the opening of Bids in order to be entitled to a refund. Any sub-bid mailed to the Architects and postmarked not later than 12 o'clock noon of the day before bid opening will comply with the above condition.

OFFICIAL PROPOSALS

Proposals must be completed in both words and numerals on regular Proposal forms, and shall be submitted in a sealed envelope marked "Proposal for State Office Building," addressed to the Commissioner, Public Works and Highways and delivered to his office not later than the date and time mentioned above, after which they will be publicly opened and read. Proposals must be accompanied by a Certified Check or Bid Bond in the amount of 5% of the amount of the bid payable to the "Treasurer, State of New Hampshire" as security for the execution of the Contract.

All Bidders before obtaining plans and specifications must file with the Dept. of Public Works and Highways, on forms prepared for that purpose, a statement showing their qualifications. Bidders will be requested to file with their proposals the names of proposed sub-contractors for certain parts of the work, together with the amount of their sub-bids. No portion of this Contract shall be sublet, assigned or otherwise disposed of except with the written consent of the Commissioner of Public Works and Highways. Any list of subcontracts must be considered tentative until approved by the Commissioner.

The successful Bidder will be required to furnish a Contract Bond in the amount of one hundred per cent (100%) of his bid on forms furnished by the Department.

The right is reserved by the Commissioner, Dept. of Public Works and Highways to waive any informalities in any proposal or to reject any and all proposals. After opening, all bids shall stand available for acceptance for a period of thirty (30) days.

FRANK D. MERRILL,
Commissioner

Dated: May 23, 1951

Bids: June 26, 1951

Caisson and Substructure Work

FOR
CITY-COUNTY BUILDING
DETROIT-WAYNE JOINT BUILDING
AUTHORITY
CONTRACT NO. CC-2

The Detroit-Wayne Joint Building Authority will receive sealed proposals for caisson and substructure work for the City-County Building and appurtenant structures, to be located on the east side of Woodward Avenue north of Jefferson Avenue in Detroit, Michigan, until 2:00 PM, Tuesday, June 26, 1951. Proposals should be endorsed "Proposal for Contract CC-2, Caisson and Substructure Work, City-County Building," and addressed to the Detroit-Wayne Joint Building Authority, 404 County Building, Detroit 26, Michigan. Bids will be publicly opened and read aloud at the time above mentioned in Room 422, County Building. Any proposals received after the above-mentioned time will be returned to the bidder unopened.

The accepted bidders will be required to furnish satisfactory performance and labor and material bonds.

The work under Base Bid 1 consists of all excavating and caisson work for City-County Building and all appurtenant structures; also complete structural shell of basement up to the top of the first-floor structural slab of building and to top of caisson caps of symbol; ramp and service-court walls, footings, and gravel incline; underground (mechanical) piping inside property line; sewers, drainage lines, etc., both inside and outside property line; all the above being subject to certain additions and/or exceptions as indicated on the Drawings and defined more fully in the Specifications.

The work under Base Bid 2, which is predicated upon possible delay in the delivery and erection of the structural-steel framing, consists of all of the work under Base Bid 1 except that part of the substructure inside the building line of the superstructure and above the underside of future basement floors, also certain walls of ramp and service-court areas, all of which are tied to or cannot be constructed prior to erection of structural steel frame, all the above being subject to certain additions and/or exceptions as indicated on the Drawings and defined more fully in the Specifications.

All proposals must include prices for the work under Base Bid 1 and for the work under Base Bid 2.

Separate contracts are contemplated for (1) structural-steel framing, (2) cellular steel floors, and (3) a general contract for the superstructure, including also all finish work in the substructure.

The Contract Documents, including Notice to Bidders, Form of Proposal, Form of Contract Agreement, Drawings, and Specifications, may be examined and obtained at the offices of the Architects and Engineers, Harley, Ellington and Day, Inc., 153 East Elizabeth Street, Detroit 1, Michigan, during business hours. A deposit in the sum of $25.00 is required for each set of plans and specifications, to be refunded if plans and specifications are returned without marks or other mutilations within 10 days after receipt of bids.

Proposals must be submitted on forms furnished by the Architects and Engineers, and each must be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than 5 per cent of the total bid price as security for the acceptance of the Contract.

After the scheduled closing time for receipt of bids, no proposal may be withdrawn for at least 30 days.

The Detroit-Wayne Joint Building Authority reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

DETROIT-WAYNE JOINT BUILDING AUTHORITY
ALBERT E. COBO, Chairman
CHARLES G. OAKMAN, Commissioner
JESSE ZIEGLER, Commissioner

Bids: June 20, 1951

Pumping Stations

Sealed bids will be received by the Board of Commissioners of Springfield Township, Montgomery County, Pa., in the Township offices, 402 Bethlehem Pike Erdenheim, Pennsylvania (Philadelphia 18, Pa.) until 8:00 P.M. Eastern Daylight Saving Time, June 20, 1951 for the following contracts:

4-A—Pumping Station, Grit Chamber & Force Main—General & Structural.
4-B—Pumping Station, Grit Chamber & Inside Pipe Lines—Mechanical.
4-C—Pumping Station—Heating & Ventilating.
4-D—Pumping Station—Plumbing & Water Line.
4-E—Pumping Station—Electrical.
5—Intercepting Sewer and Outfall Line.
6—Branch Sewers—Flourtown District.

Plans, specifications and contract documents may be seen at the offices of the Township Secretary at the above address and obtained at the office of George B. Mebus, Consulting Engineer, Northwestern National Bank Building, Glenside, Pennsylvania upon deposit of $25.00 each for Contract 4-A, Contract 5, and Contract 6 and $15.00 each for Contract 4B, Contract 4-C, Contract 4D, and Contract 4E. Of the above amounts $15.00 each will be refunded for Contracts 4A, 5 and 6 and $10.00 each will be refunded for Contracts 4-B, 4-C, 4-D and 4-E upon return of plans and specifications in good condition to the Consulting Engineer office by 5:00 P.M., Eastern Daylight Saving Time, July 1, 1951.

A certified check or bid bond approved by the Commissioners in the amount of Five (5%) per cent of the amount of the total bid tendered made payable to the Board of Commissioners of Springfield Township, shall accompany the bid tendered. The certified checks or bid bonds will be returned after the contracts and bonds have been executed.

The Board reserves the right to reject any or all bids and waive formalities or take such other action that it may deem to be in the best interest of the Township.

James Fulginiti
Township Secretary

0—50539
April 1951

Bids: June 11, 1951

Exhaust Duct Dampers

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
CONTRACT BT-110.023

Sealed proposals for the furnishing and installation of exhaust duct dampers in the Port Authority Bus Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Monday, June 11, 1951 at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, May 31, 1951.

(Continued on page 73)

OFFICIAL PROPOSALS
(Continued from page 72)

Bids: June 6, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on June 6, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Montgomery	FARC 51-12	Sloansville-Rural Grove Pt. 2, S. H. 8404 Proj. F-588(3)	3.35	8" Cem. Conc. Pavt. 22' Wide = 3.31 Mi.; Asph. Conc. Type 1A, Opt. = 0.04 Mi.	$21,000 Plans $15	$392,000
		DISTRICT No. 3				
		WILLIAM ROBINSON, Weigh Lock Building, Syracuse 1, N. Y.				
Seneca	FARC 51-15	Watkins-Lodi Pt. 3, S. H. 8035 Reservation Road-Ovid, S. H. 323 Proj. F-31(3)	5.85	8" Cem. Conc. Pavt. 22', 26', 38' & 44' Wide Reinf. Conc. Arch. 104' SP.	$57,000 Plans $25	$967,000
Tomp.	FARS 51-11	Trumansburg-Ithaca S. H. 616 Proj. F-128(2)	4.70	9" Cem. Conc. Pavt. 24'-40' Wide = 4.62 Mi. Misc. Work = 0.08 Mi. Extend 23' Sp. Conc. Slab 6' on Rt.	$35,000 Plans $10	$610,000
		DISTRICT No. 5				
		C. R. WATERS, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Chautauqua	FARC 51-16	Cassadaga-Fredonia, S. H. 938 Proj. S-796(2)	0.53	Asphalt Conc. Ty. 1-A, Opt.	$5,000 Plans $10	$88,000
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Highway at Little East Neck Rd., Babylon, L. I., N. Y.				
Bronx & Westchester	FA BRP 51-2	Bronx River Parkway (Southerly Ext.) FA BRP 50-1, 50-2 & 51-1 Proj. U 979(12)	3.63	Landscaping & Misc. Work = 5.01 Mi. Direction Signs = 0.62 Mi.	$65,000 Plans $25	$1,180,000
Queens	FA VWE 51-2	Van Wyck Expressway, Contract 14A Proj. U 658(17)	0.30	Alpha Royalty $229.50 8" & 9" Cem. Conc. Pavt. 2 at 25' Wide = 0.28 Mi. Misc. Work = 0.02 Mi. Hy. Sep. 2 Sp. Rc. Arch 1 at 60' & 1 at 44'-6" Hy. Sep. Pl. Girder, 69'-0 1/2" Sp. Hy. Sep. Plate Girder, Var.	$170,000 Plans $100	$2,855,000
Suffolk	N. SAG. SP 51-1	Northern-Sagtikos State Parkway (Cont. 4)	4.76	9" Unreinf. Cem. Conc. Pavt. 50' Wide	$95,000 Plans $50	$1,662,000
Suffolk	N. Sag. SP 51-2	Sagtikos State Parkway (Cont. 2A)	0.07	Grading & Structure RR. Sep. Alpha I-Beam, 53'-11" Alpha Royalty = $74.48	$14,000 Plans $15	$238,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated. The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Bids: June 14, 1951

Canal Improvement

STATE OF NEW JERSEY
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY AND SUPPLY

Sealed proposals for the construction of the "Prallsville Control Structures" on the Delaware and Raritan Canal Feeder in the Borough of Stockton and the Township of Delaware, Hunterdon County, New Jersey, will be received by the Division of Water Policy and Supply at its office, Room 307, 520 East State Street, Trenton, N. J., until 11 A.M. (D.S.T.), Thursday, June 14, 1951, at which time and place the bids will be publicly opened and read.

The work includes construction of reinforced concrete regulating gate structure, retaining walls, spillway and sluice gate structure, revetment with slope protection, planks, operating walkways, four bar screens; excavating and paving channel; gunite lining of existing arch culverts; installation of eight sluice gates; removal of existing structures; coffer dam and pumping, miscellaneous work, restoring site. Approximate quantities involved are: Foundation excavation 750 cu. yds.; channel excavation 3400 cu. yds.; rock excavation 750 cu. yds.; concrete (Class B) 450 cu. yds.; concrete (Class C) 850 cu yds.; reinforcing steel 46,000 lbs.; pneumatic mortar protection 3200 sq. ft.; riprap slope paving 2000 sq. yds.

Drawings, specifications, form of bid, contract and bond for the proposed work will be on file at the Canal Office of the Division, 342 Academy St., Trenton, N. J., and may be inspected by prospective bidders during regular office hours. Plans will be furnished on the deposit of $10 for each set on application to the Canal office.

Bids must be made on standard proposal forms and must be submitted in sealed envelope bearing the name and address of the bidder on the outside and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey in the amount of ten per cent of the bid submitted, and must be delivered at the above place on or before the time stated. Copies of standard proposal forms will be furnished on application. Prequalification of bidders will be required. The right is reserved to reject any or all bids. BY ORDER OF THE WATER POLICY AND SUPPLY COUNCIL, John Wyack, Secretary.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3434) will be received by Bureau of Reclamation, Canyon Ferry, Montana, until June 14, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Canyon Ferry-East Helena 115-kilovolt transmission lines, Missouri River Basin Project, Montana. The work is situated near Helena, Montana. The transmission lines will be 2 parallel, 3-phase, single-circuit, wood-pole, H-frame type lines, each approximately 8 miles long, and each with 2 overhead ground wires. Contractor to furnish all materials. Desired time allowed for completion is 200 days.

U. S. Government

For particulars, address Bureau of Reclamation, Canyon Ferry, Montana; or Building 1-A, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: June 12, 1951

State Road Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 6, SECTION 23B

Construction of Route 6, Section 23B, from Pine Brook Relocation to Little Falls Road, Caldwell Township, Essex County, Federal Project No. F1-88(13). Length 2.232 Miles.

Roadway Items

Estimated:
17,600 cu. yds. Roadway Excavation—Earth
40,400 cu. yds. Wet Excavation
327,500 cu. yds. Borrow Excavation
9,000 sq. yds. Macadam Base Courses
18,700 sq. yds. Concrete Base
2,150 tons Pavement, Type MA-BC-1
600 tons Pavement, Type A or T
62,000 sq. yds. 10" Rein. Conc. Pavement Surface

Bridge Items

6,459 cu. yds. Concrete in Structures
1,359,400 lbs. Structural Steel
327,630 lbs. Reinforcement Steel in Structures
18,820 lin. ft. Timber Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, June 12, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by Section 1, P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions required that labor be employed from lists furnished by the State Employment Service, 600 Bloomfield Avenue, Bloomfield, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wages paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the book designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott,
State Highway Commissioner

(Continued on page 74)

OFFICIAL PROPOSALS
(Continued from page 73)

Bids: June 26, 1951

The Watertown Housing Authority will receive bids for the construction of a 100 unit project under the Federally financed low-rent housing program. The project consists in general of two story row houses, frame construction, divided among approximately 14 buildings, crawl spaces beneath buildings except in the administrative building, central heating plant, circulated hot water. Such bids will be received until 2:00 P.M. Daylight Saving Time on the 26th day of June, 1951, at Watertown Housing Authority, #36 Flower Building, Watertown, New York, at which time and place all bids will be publicly opened and read aloud.

Proposed forms of contract documents, including plans and specifications, will be on file at the office of Watertown Housing Authority at #36 Flower Building, Watertown, New York. In addition to General Construction Contract, separate prime contracts will be let for plumbing, heating and electrical work.

Copies of the documents may be obtained on and after June 5, 1951 by depositing $25.00 with the Watertown Housing Authority for each set of documents so obtained. Such deposit will be refunded to each person who returns the plans, specifications and other documents in good condition within 10 days after bid opening.

A certified check or bank draft, payable to the Watertown Housing Authority, U. S. Government bonds, or a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to five percent of the bid shall be submitted with each bid. The successful bidder will be required to furnish and pay for satisfactory performance and payment bond or bonds.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Specifications must be paid on this project.

The Watertown Housing Authority reserves the right to reject any or all bids or to waive any informalities in the bidding.

No bid shall be withdrawn for a period of twenty-five (25) days subsequent to the opening of bids without the consent of the Watertown Housing Authority.

WATERTOWN HOUSING AUTHORITY
By: J. J. Morrison,
Title: Chairman

Date: May 21, 1951

Bids: June 13 1951

Construction of the Ramapo Force Main

WANAQUE HEADWORKS
WANAQUE, NEW JERSEY

Sealed proposals will be received from 2:30 P.M. to 2:45 P.M. Eastern Daylight Saving time on Wednesday June 13 1951 by the North Jersey District Water Supply Commission in its office, Wanaque Headworks Wanaque, New Jersey, and publicly opened and read at the last named hour for the performance of all the necessary work required for the construction of the Ramapo Force Main.

The work included consists of the installation of a single pipe line of approximately 24,725 linear feet of 72-inch inside diameter steel pipe, to be supplied by the Commission. In general, all pipe is to be placed in a trench in open cut, approximately two-thirds of it parallel to the existing Wanaque Aqueduct, and covered with embankment about 3 feet above the top of the pipe. The work will be divided into two sections, Section 1, from a point about 200 feet south of Green Swamp Dam No. 4 to the borough line separating Wanaque and Pompton Lakes, a distance of approximately 12,325 feet, and Section 2, from the borough line to the former hydro-electric plant at Pompton Lakes dam in Pompton Lakes, New Jersey, a distance of approximately 12,400 feet. Bids will be received for Section One or Section Two or for the two combined. In case a bidder submits a bid on the two combined sections, he must satisfy the Commission that he has sufficient equipment and resources for the work. The work also includes connection chambers, installation of a Venturi tube in Section 1, to be supplied by the Commission, inspection, blow-off and air valve chambers, culverts, highway, river and railroad crossings, and other appurtenances.

A pamphlet containing the information for bidders, form of proposal, form of contract, specifications and drawings may be examined in the office of the Commission or may be obtained at the said office upon deposit of ten dollars ($10.00), which deposit will be repaid upon return of the pamphlet within 30 days after award of contract.

OFFICIAL PROPOSALS

All bids shall be made on the blank form supplied by the Commission, which provides for a detailed statement as to the bidder's experience and resources as well as the unit price for which he will execute the work.

Each proposal must be accompanied by an agreement in writing of a surety company qualified to do business in New Jersey, binding itself to indemnify the Commission against any losses due to the failure of the person or persons making said proposal to properly execute the contract in case it be awarded to him or them, and binding itself that if the contract be so awarded the said surety company will become surety for the full and faithful performance of the same in an amount equal to 100 per cent of the contract price and, through an additional obligation, will also become surety in the sum of 100 per cent of the contract price, for the protection of all persons furnishing materials or labor for fulfilling this contract in accordance with Revised Statutes of New Jersey 2:60-207 to 211, inclusive.

All bids must be accompanied by a certified check for fifty thousand dollars ($50,000) as a guarantee. Checks of unsuccessful bidders will be returned within 30 days, that of the successful bidder upon the execution of contract and bonds.

The Commission reserves the right to accept any bid deemed advantageous or to reject all proposals or any proposal which may be informal, the acceptance of which, in the judgment of the Commission for the reasons as suggested in information for bidders or for any other reason, would be detrimental to the interests of the municipalities for which the work is to be done.

By order of the North Jersey District Water Supply Commission of the State of New Jersey.

WILLIAM P. FURREY,
Chairman

Attest: George V. McDonough, Secretary.

Bids: June 28, 1951

Water Distribution System Reinforcement

Sealed proposals for installing, complete and ready for operation, cement lined cast iron pipe, pipe fittings and appurtenances for the reinforcement of the water distribution system will be received by the Executive Manager of the Chester Municipal Authority at the Authority office, Fifth and Welsh Streets, Chester, Pa., up to 2:00 P.M., Eastern Daylight Time, Thursday, June 28, 1951, at which time and place the proposals will be publicly opened and read aloud.

Cast iron pipe, pipe fittings, jointing materials, encasement pipe, gate valves, tapping sleeves and valves, inserting valves and pressure reducing valves will be furnished by the Chester Municipal Authority. All other materials necessary to complete the work, including fire hydrants shall be furnished by the Contractor.

The work will be divided into three contracts as follows:

Contract No. 39 — Approximately 10,000 lineal feet of 20 inch diam. pipe and appurtenances in Front and Second Streets, from Fulton to Booth Streets and approximately 2000 lineal feet of 12 inch diam. spur connection piping, all within the City of Chester, Delaware County, Pa.

Contract No. 40 — Approximately 9,500 lineal feet of 20 inch diameter pipe and appurtenances in Second Street and Post Road, in the City of Chester and the Boroughs of Trainer and Marcus Hook, Delaware County, Pa.

Contract No. 41 — Approximately 10,000 lineal feet of 18 inch pipe and appurtenances in Concord Road from Duttons Mill Road to Engle Street, in Aston and Chester Townships, Delaware County, Pa. Also as a part of Contract No. 41 is the installation, at various locations in the distribution system, of miscellaneous appurtenances including one pressure reducing valve assembly and seven inserting valves in size between 20 inches and 30 inches.

Contractors may submit a proposal for any one contract any two contracts or all three contracts individually or he may submit in addition thereto a bid for all three of the contracts in combination.

Each set of contract documents, including plans and specifications, cover the work included in all three contracts, and may be examined at the office of the Chester Municipal Authority or at the office of Albright and Friel Inc., Consulting Engineers, 121 South Broad Street, Philadelphia 7, Pa., on or after June 7, 1951, and copies thereof may be obtained at either office upon making a deposit of $40.00 for each set of documents. If the documents are returned in good condition within five (5) days after the opening of bids, the full amount of the deposit for one set will be returned to each actual bidder, and other deposits will be refunded with a deduction of $20.00 to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A certified check or bid bond drawn to the order of the Chester Municipal Authority equal to five per cent (5%) of the amount of the bid must be submitted with the proposal.

The Chester Municipal Authority reserves the right to reject any or all bids or waive any informality, and to award each contract individually or all three contracts in combination, as may be deemed by the Authority to be to the Authority's best interest.

No bidder may withdraw his bid within thirty (30) days after the actual date of the opening thereof.

CLARENCE L. CONNER,
Executive Manager

Dated: May 17, 1951

Bids: June 27, 1951

Dock, Outlet Chamber and Dredging

THE LINDEN ROSELLE SEWERAGE AUTHORITY
LINDEN, N. J.
CONTRACT No. III

1. Sealed proposals for the construction of CONTRACT No. III of a pollution abatement project in the City of Linden, New Jersey, will be received by the Linden Roselle Sewerage Authority in the Council Chambers, City Hall, Linden, until 8:00 P.M., E.D.S.T., on Wednesday, June 27, 1951, and there publicly opened and read immediately thereafter.

2. The work will consist of providing all labor, materials, equipment and incidentals required for the construction of the following:

Approximately 70,000 cu. yds. of dredging; 9000 sq. ft. of steel sheet piling; 2400 lin. ft. of steel bearing piles; 3100 lin. ft. of wood piles; 231 lin. ft. of 68" x 68" flat base reinforced concrete conduit and 24" dia. reinforced concrete and cast iron pipe; and miscellaneous structural steel and concrete deck work and appurtenances.

3. Plans, specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Alexander Potter Associates, 50 Church Street, New York 7, N. Y., and there obtained upon a deposit of $20.00 per set.

Full refund will be made to actual bidders for return of one (1) set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty percent (50%) of the deposit.

4. All proposals must be on the form contained in the specifications.

5. All bids must be accompanied by a certified check or acceptable bidders' bond in the amount of ten (10%) per cent of the amount of the bid, made payable to The Linden Roselle Sewerage Authority. Said checks or bonds will be returned to the unsuccessful bidders not later than thirty (30) days after opening of bids.

6. The successful bidder in each of the several contracts will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract and upon the payment of all persons supplying labor and furnishing materials on the construction of the work.

7. No bidder may withdraw his bid within thirty (30) days after closing date for receipt of bids.

8. The Authority reserves the right to reject any or all bids and to waive any informality in the bid.

BY ORDER OF THE SECRETARY
OF THE LINDEN ROSELLE
SEWERAGE AUTHORITY
Charles H. Gross

DATED: May 17, 1951

Read the Official
Proposal Columns of
ENGINEERING NEWS-RECORD
This Week and Every Week

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
EMPLOYMENT WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.25 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS received by June 4th at the New York City Office, 330 W. 42 St., N. Y. 18, will appear in June 14th issue subject to space available.

CONSTRUCTION SUPERINTENDENT

Experienced in construction of Open Hearth Plants. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-9735, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED MECHANICAL Engineer, age 35-50, should have had at least ten years experience in material handling, preferably in hoist equipment field. Also should have supervisory ability. Write full qualifications and salary requirements. P-9765, Engineering News-Record.

DESIGNERS, ENGINEERING Draftsmen for established consulting firm designing sewers, pumping stations, sewage treatment plants, water supply systems, etc. Layout and detail drafting on structures, piping, reinforced concrete. Structural and hydraulic computations, specifications. Give full particulars. Location, New York State. Our employees know of this advertisement. P-9755, Engineering News-Record.

TWO HIGHWAY Engineers wanted, experienced in surveys, designs, and preparation of plans. State qualifications, availability and Military Status. Write Box 351, New Philadelphia, Ohio. Phone 42364.

ESTIMATOR-BUILDING Construction. Old established contracting firm, located in Chicago has permanent position for well-qualified man. Salary open. Write details to P-9802, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

CONTRACTOR'S ENGINEER—Field Superintendent by a medium-sized general contracting company doing heavy construction work including bridges, highways, buildings, etc. Located within suburbs New York City. Applicant must have previous experience with a general contractor taking off quantities, preparing estimates and supervising projects in field to completion. Maximum age forty years. Must assume administrative responsibility from bidding to completion of projects. In reply state age, experience, reference, education, salary expected and when available. P-9810, Engineering News-Record.

(Continued on page 76)

ENGINEERS
DESIGNERS & DRAFTSMEN

Electrical, Mechanical
Structural & Hydraulic

Reinforced Concrete
Designers & Detailers

FOR WORK ON

Industrial Plants
Paper & Textile Mills
Water Supply & Waste Disposal
Steam & Hydroelectric Power Plants
Electrical Transmission & Distribution

CHAS. T. MAIN, Inc.
80 Federal Street
Boston 10, Mass.

WANTED
GRADUATE ELECTRICAL ENGINEERS
For employment in Power Station, Substation, Transmission and Distribution design engineering with a public utility. Various openings available for men with general layout, diagram, and study experience. Location, Western Pennsylvania. Qualifications, experience record, salary desired, and picture should be submitted with letter of application.
P-9906, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED
SALES ENGINEER
Or trainee for construction equipment business in St. Louis. Prefer young or middle-aged man interested in selling and buying, mostly by correspondence, preferably with some civil and/or mechanical engineering education. Reply in detail outlining education and background.
P-9805, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DESIGNERS, DRAFTSMEN, ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.
P-9872, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED
GRADUATE MECHANICAL ENGINEERS
For employment in Power Station design engineering with a public utility. Various openings available for men with general layout, piping, and drafting experience. Location, Western Pennsylvania. Qualifications, experience record, salary desired, and picture should be submitted with letter of application.
P-9909, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ADDITIONAL POSITIONS VACANT ADS ON PAGE 77

ESTIMATOR
Wanted in California
Must be experienced in take-off and estimating of industrial buildings. Experience in alteration work desirable. Excellent opportunity for right man to join with 20 year old firm well established in the nation's fastest growing industrial center. Give personal and business background.
P-9851, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

POSITIONS VACANT
(Continued from page 75)

WANTED: SUPERINTENDENT for Rock Quarry. Permanent position. Salary open. L. G. Everist, Inc., Sioux Falls, South Dakota.

CIVIL ENGINEERING Technicians: Laboratory and field men, experienced in soils, concrete and asphalt. Defense projects in East, Midwest, South. Forward complete details to Toledo Testing Laboratory, Toledo, Ohio.

LABORATORY AND Field Supervisor: Experienced in soils, concrete and asphalt, must be registered P.E. Furnish complete details to Toledo Testing Laboratory, Toledo, Ohio.

DRILLERS: EXPERIENCED in soil borings and rock drilling. Work located in Ohio and Michigan. Permanent work for qualified drillers. State age, experience and salary. Toledo Testing Laboratory.

WANTED BY large heavy construction company doing international business an executive competent to estimate and negotiate large construction work. Must have proven experience in relationships both with associates and subordinates. Age under 50, preferably about 40. Technical engineering education preferred. P-9847, Engineering News-Record.

ESTIMATOR AND Quantity Man: Permanent, industrial buildings, position northern New Jersey, state age, experience, salary desired and when available. P-9845, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT: Industrial buildings, must be top-man, position northern New Jersey, state age, experience, salary desired and when available. P-9846 Engineering News-Record.

DRAFTSMAN OR engineer, mechanical, experienced on industrial piping and equipment, office and field work. Write P. O. Box 1166, Roanoke, Va.

ENGINEER, CIVIL, experienced on construction work in office and field. Write P. O. Box 1166, Roanoke, Va.

BOOKKEEPER, EXPERIENCED, with ability as typist. Write P. O. Box 1166, Roanoke, Va.

SALES ENGINEER: District Sales Manager for large manufacturing concern in construction materials. Must have degree in Civil Engineering. Have experience in contacting engineers and contractors and be a resident of the South. Prefer native of Georgia as position is located in Atlanta. This is a excellent proposition and only those qualified will be interviewed. P-9877, Engineering News-Record.

TWO SALES Engineers: to represent AAA-1 manufacturing concern in Atlanta, Georgia, and Decatur, Alabama, and their vicinities. The men we want should be between the ages of 24 to 40 with Civil Engineering degrees and sales experience. Top pay. P-9876, Engineering News-Record.

SUPERINTENDENT OF Operation: for municipal water system with experience in operation and maintenance of chlorinators, pumping stations, deep wells, installation of copper service connections, meter maintenance and testing. Ecuador, South America. Minimum 2 year contract, salary $8400. Send experience records, references, etc., Suite 52, 1737 H Street, N.W., Washington, D. C.

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E., and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland 15.

ESTIMATOR FOR General Contractor in New York City. Take off and price quantities. Primarily Public Works. State salary and experience. P-9891, Engineering News-Record.

GENERAL SUPERINTENDENT. Continuous travel covering work in Western New York and Pennsylvania for New York City Contractor. State Salary and experience. P-9921, Engineering News-Record.

CONSTRUCTION SUPT. experienced concrete bridge deck, Metropolitan N. Y. area. P-9873, Engineering News-Record.

JOB ENGINEER—South America—familiar with all phases heavy industrial construction. Steel experience helpful. Job duration approximately two years. Send resume. P-9859, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation and bonus plan, group insurance, good working conditions. Only top quality men. Send complete written information. Samborn, Steketee and Associates, 1214 Cherry Street, Toledo 2, Ohio.

SELLING OPPORTUNITY OFFERED

ESTABLISHED MANUFACTURERS' Sales Representatives wanted by reputable manufacturer whose patented product is used in construction of sewage disposal plants, waterworks, pumping stations, industrial plants, etc. Territory open—Alabama, Kentucky, Mississippi, Missouri, New Mexico, Tennessee, Texas, Utah. RW-9858, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven.

POSITIONS WANTED

CONSTRUCTION EXECUTIVE, 50. Capable of managing an entire business. Thoroughly experienced with buildings, machinery installation, process piping and heavy construction projects. Actual superintendent and project manager background on large jobs. PW-9580, Engineering News-Record.

CIVIL ENGINEER, age 38, Married. B.S. now completing M.S. hydraulic engineering major. 10 years experience water power and flood control, 2 years college instructor, Assoc. A.S.C.E. PW-9761, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and Engineer desires work in New England. Experienced industrial plants, housing, roads, sewers, docks, bridges. Skilled estimator. PW-9775, Engineering News-Record.

DIVER-FRANK HEFLING, formerly Chicago, San Francisco; US or foreign work. Passport. Capable of deep water. 17 yrs. const., salvage, surveys, special jobs outfitted. Record underwater torch. Improved telephone equipped gear, safety power compressor, single unit lifeline. Experienced designer air lift dredging, dewatering. Miami, Florida, 268 S.W. 8th St., Phone 3-8089.

BUSINESS MANAGER. Will take complete charge of Contractor's office. Can handle new business, estimating, purchasing, supervision of field work. 25 years experience. Any location. PW-9785, Engineering News-Record.

CONSTRUCTION MANAGER or Superintendent. Solid background of experience in construction of power plants, steel mills, sugar mills, paper mills, heavy industrial projects and commercial buildings in United States and Latin America. Speak Spanish. Interested only in long term employment at top salary. Now employed, available 30 days. PW-9807, Engineering News-Record, 520 North Michigan Ave., Chicago, Ill.

PROJECT MANAGER or Project Engineer. Wide experience in design and construction of power plants, steel mills, various industrial projects. Successful organizer and administrator. Presently employed, available 20 days. PW-9808, Engineering News-Record, 520 North Michigan Ave., Chicago, Ill.

EQUIPMENT SUPT., Mechanical Operating Engineer, over 25 years experience with erection, repair, maintenance heavy industrial, power plants, pumping stations, marine equipment. P. Cornwell, 6824, Colonial Rd., Brooklyn 20, N. Y., TErrance 6-6236.

COST ENGINEER: Employed—10 years construction experience. Specializing in development of cost information for use in estimating to eliminate guess work. Qualified executive accountant with both professional and business experience. Seeking permanent assignment with unlimited opportunity. Middle aged. Present salary $7200.00. PW-9917, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, Project Manager, Project Engineer, or Assistant to these. Over 17 years experience in Industrial and Government work. Excellent references. PW-9866, Engineering News-Record.

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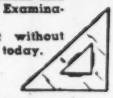

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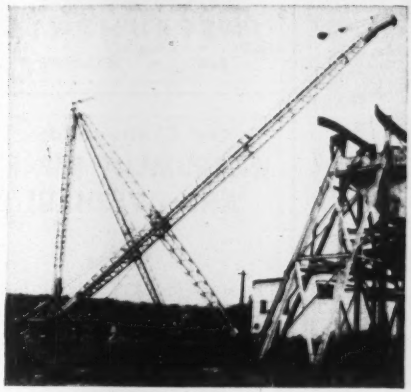

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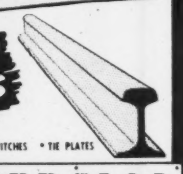

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Albert Pipe Supply Co., Inc. 82
Albro Steel Co. 79

Bendix Machinery Co., Inc. 82
Booth & Olson, Inc. 83
Boots, J. L. 78
Brooks Co., R. E. 81
Brown-Bevis Equipment Co. 83
Bucks County Construction Co. 78

Campanella & Cardi Construction Co. .. 78
Cappello, Mrs. A. 78
Caribbean Equipment Co. 78, 82
Carlyle Rubber Co. 81
Carpenter, Inc., R. F. 78
Clark Co., W. I. 81
Commercial Metals Co. 80
Concrete Equipment Co. 82
Construction Survey Coop. 76, 77
Contractors Machinery Co. 79

Daniel, Louis 82
Darien Corp. 82
Davidson Pipe Co., Inc. 82
Day & Maddock Co. 79
Detroit, City of 77

Ennis Supply Co. 78
Everist Inc., L. G. 80

Ferguson Co., H. K. 77
Florida Steel & Supply Corp. 81
Foster Co., L. B. 82
Frank, M. K. 80
Frazier-Davis Construction Co. 82
Fritz Steel Corp. 82
Fruchbaum, J. 77

Groves & Sons & Co., S. J. 79, 81
Guion, H. P. 79

Harris Wrecking Co. 83
Hunter Tractor & Machinery Co. ... 79, 82

Industrial Plants Corp. 79

Koch Erecting Co., Karl 82

Ladenheim's Garage, Inc. 81
Lane Construction Corp., The 83

Main, Inc., Chas. T. 75
Martin Inc., Ivan M. 80
Mason Co., Inc., Silas 83
McKee & Co., Arthur G. 77
Meagher & Sons, Inc., W. J. 80
Meyer Co., Inc., The Henry H. 83
Mississippi Valley Equipment Co. 82

Palmer & Baker, Inc. 77
Pecora, Joe 76
Pellicio Bros., Inc. 78

Quist Construction Co., Inc. 82

Reynolds, J. R. 78
Rowen-Leahy Co., The 83

Stabler, Donald B. 81
Stone Equipment Co. 82
Stone the Crane Man 79

Tuller Construction Co., The 79, 81

V. C. L. 79

White Co., David 80
Wicomico Soil Conservation District .. 81
Williams Construction Co. 80
Wilson Engineering Corp. 76
Wyman, Inc., W. W. 78

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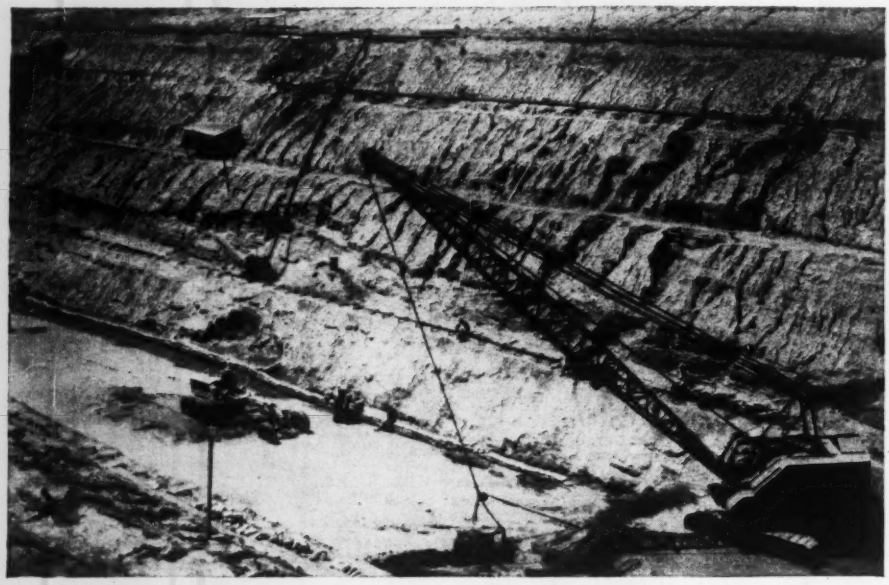

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NEW PRODUCTS

Mobile unit is combination compressor; backhoe

The Tractair-Backhoe is a combination tractor, air compressor, and light-duty backhoe. The Henry backhoe attachment is a hydraulic unit employing 12 to 22-in. buckets. It digs to a depth of 7 ft, swings 60 deg right or left, and has a positive stop at center to assure straight-line digging. An optional hydraulically actuated bucket permits dumping material as high as 6 ft 2 in. The compressor has a capacity of 105 cfm. Maximum digging reach for the live bucket is 12 ft 6 in; maximum dumping reach from pivot, 9 ft 0 in.; over-all length, travel position, 18 ft 0 in.; overall height, travel position, 11 ft 0 in.; weight of the complete unit is 4,810 lb.—Le Roi Co., 1706 S. 68th St., Milwaukee 12, Wis.

Portable gasoline hammer

Improved Barco hammers feature new ignition, greater portability, and increased operating convenience. The compact ignition coil-vibrator-condenser assembly is now located in the right hammer handle. Electric source is a 6-v battery. The hammer requires no auxiliary equipment for operation. The J-2 weighs 72 lb; the H-6B, weighs 89 lb. Both deliver up to 1,550 strokes per min.—Barco Mfg. Co., Dept. J-29, 1814 E Winnemac Ave., Chicago 40, Ill.

Scaffold end frame

Safety, versatility, and low price are features claimed for a new-type end frame for light tubular-steel scaffolding. These frames are 36 in. wide by 6 ft. high, and are interchangeable. One frame is ladder-type—for use at ends of scaffolding installation in eliminating need for other ladders. The other is open-type to permit passage of workmen wheeling materials. Frames are combined into towers by attaching diagonal braces. Bil-Jax brace lock permits attachment or removal of braces without removing wing nuts. —Bil-Jax, Inc., Archbold, Ohio.

Brik-Toter connector

Simple connector joins two Brik-Toters providing a conveyor 40 ft long. It is designed to prevent sag or deflection, and to result in a rigid single truss. The connector assembly is available separately and is furnished with necessary bolts—nuts are prewelded in all Brik-Toters.—Mar-Rail Conveyor Co., 560 York Ave., Pawtucket, R. I.

Tractor-mounted snow plow

Rotary Sno-Flyr plow mounts on Caterpillar D7 crawler tractors. Power to drive plow and rotors comes from two engines mounted on a special counterbalancing platform at rear of tractor. Center of gravity of the tractor is shifted only 1 in. Diesel or gasoline engines with 200 or more hp may be used. The Sno-Flyr features two hydraulically powered 360-deg revolving casting chutes. The moldboard clears a 9-ft swath.—Wm. Bros Boiler & Mfg. Co., 1057 Tenth Ave., S. E., Minneapolis 14, Minn.

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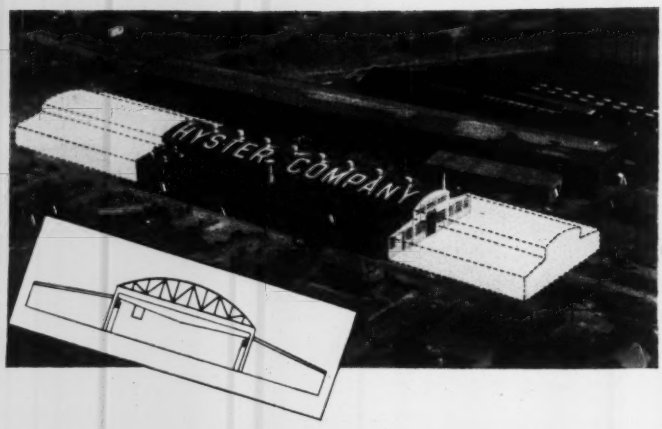
Non-freezing sanitary hydrant provides protection of supply water against contamination. It has no seep holes, and will function properly at static water pressures ranging from 25 to 130 psi and temperatures from 100 to minus 70 F. Entire internal assembly can be removed as a unit with a crescent wrench. Hydrants are available in ¾ and 1-in. sizes (1¼, 1½, or 2 in. on

(Continued on next page)



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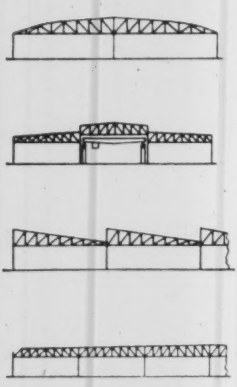

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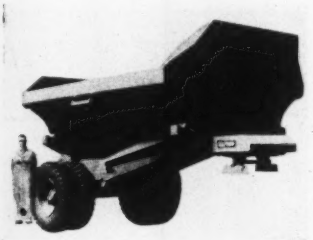
Improved Tournadozer

The Super C Tournadozer is now available with torque converter and electric control. It has a single-stage converter that acts as an automatic hydraulic transmission, combining advantages of a hydraulic torque converter and a hydraulic coupling. Gears in the constant-mesh air-actuated Tournamatic transmission are controlled by electro-magnetic valves controlled by four switches on the dash panel. Electrically controlled steering is accomplished by toggle switch mounted on the control panel.—R. G. LeTourneau, Inc., Peoria, Ill.



Side-dump trailers

Pan-type side-dump trailers are available in capacities of 14, 17, and 20 tons. The TP models are doorless and may be dumped to either side. Body may be reversed to prevent excess wear on one side. Load distribution has been improved to place more load on the fifth wheel. The fifth wheel is permanently coupled.—Easton Car & Construction Co., Easton, Pa.

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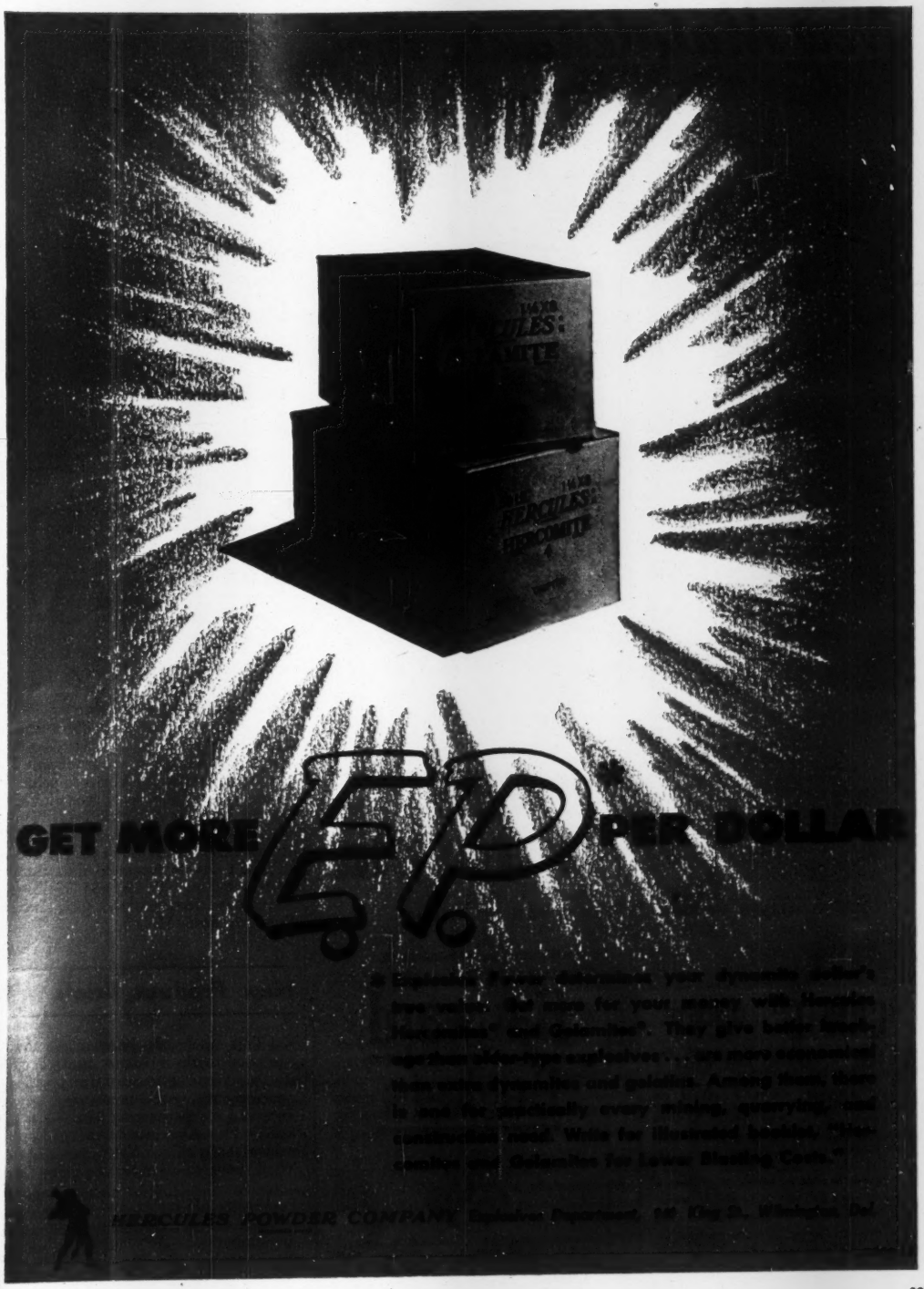
Heavy-duty rubber-seated cast-iron valve (No. 763) has been developed for emergency gas or liquid shut-off service. Valve is completely cycled and operated by a direct-connected

(*Continued on page 90*)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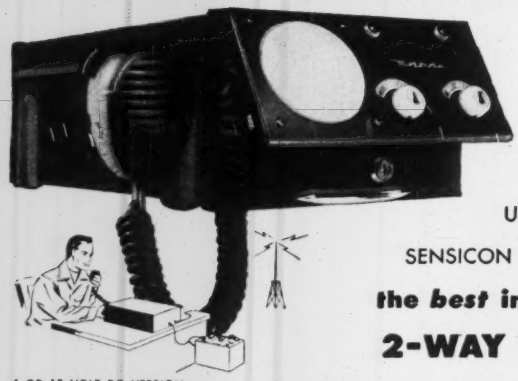

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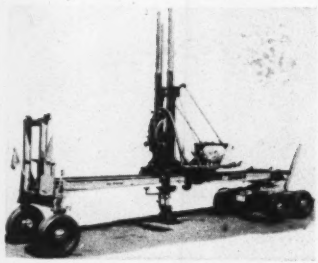

Tamping machine

Tamping machine has a 5,500-lb hammer that delivers up to 60 blows per min. It travels transversely with the ditch and will tamp a trench 15 ft wide and 15 ft deep. It can also tamp a canal bank where dirt has to be put on and tamped to a required density—main members carrying carriage and wheels can be elevated to an angle of 45 deg. Machine is automatic and can be set to deliver any blow desired.—R. P. B. CORP., 2751 E. 11TH ST., LOS ANGELES 23, CALIF.

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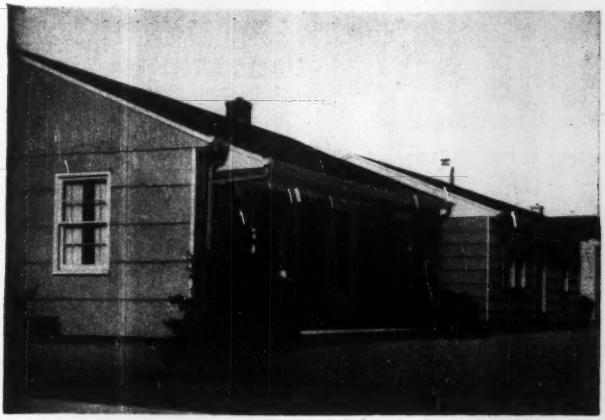
New Product Briefs

Kal-Truk materials handler is now equipped with a dump control on the front end gate permitting easier pouring into small or narrow openings, and for discharging partial loads. Kal-Truks are manufactured by: Kalamazoo Mfg. Co., Kalamazoo 24F, Mich.

Pocket-size pH meter, and companion probe unit, permits on-the-spot pH determinations. Accuracy of 0.1 pH is obtainable. Made by: Analytical Measurements, Inc., Chatham, N. J.



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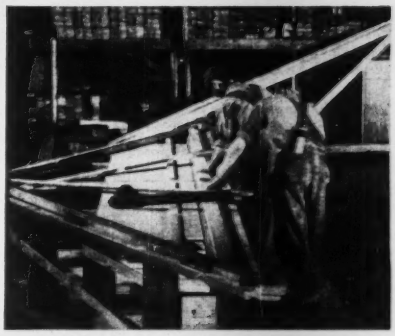
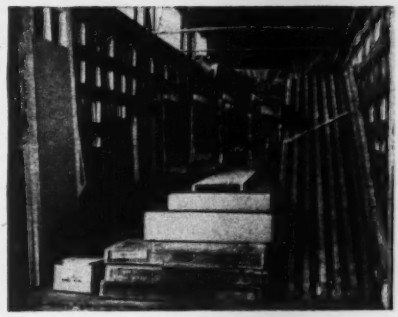


Idea for defense building

DIMENSIONAL STABILITY, important in prefabrication, is assured by water-repellent formulations of Monsanto Penta. Photo shows workmen assembling trusses and gables.



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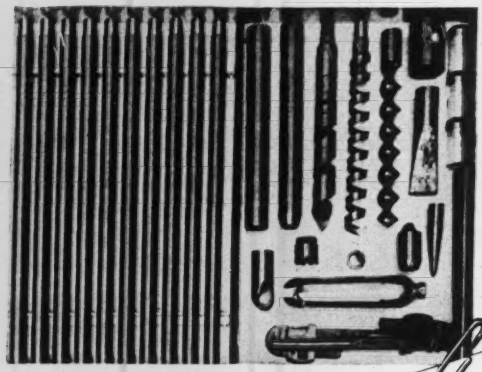

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MANUFACTURERS' PUBLICATIONS

Rear-dump Euclid—Models 31TD and 53TD 22-ton rear-dump Euclids are the subject of a 16-p catalog folder. Catalog 120 features a description of parts such as the planetary drive axle, transmission, frame, and hoists. It contains complete specification data on the entire series.—THE EUCLID ROAD MACHINERY CO., CHARDON ROAD, CLEVELAND 17, OHIO.

Portable roller—Catalog 350 presents data on the Galion portable roller. Complete specifications are listed, together with detailed description and photos of many construction and operation features. These include: Hydraulic steering, constant-mesh transmission, spur-gear final drive, variable-weight compression roll, and towing hitch with built-in hydraulic jack.—THE GALION IRON WORKS & MFG. CO., GALION, OHIO.

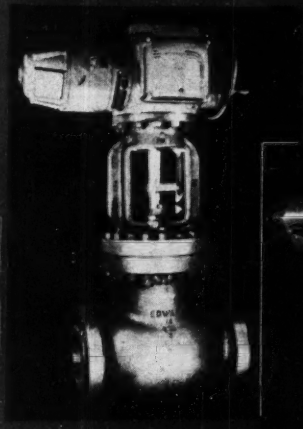
Lift trucks—Comprehensive application data on four Stuebing lift truck models is contained in data sheets listing dimensions, dimensional drawings, capacities, and operating performance figures.—LIFT TRUCKS, INC., 2425 SPRING GROVE AVE., CINCINNATI 14, OHIO.

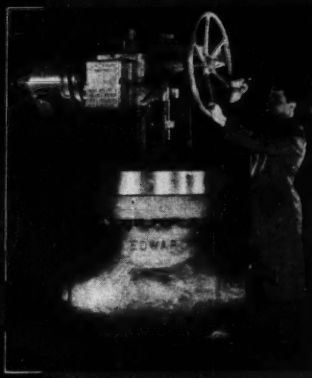
Aerial surveys—Two new catalogs are available describing aspects of aerial surveying. One tells how to obtain a resources inventory in under-developed areas. The bulletin tells how the inventory is carried out, how long it takes, how much it costs, and the steps involved. Equipment involved and the type of information obtained is also described in detail. The other bulletin describes how to obtain fast, economical ground profiles by radar. This bulletin also describes the techniques involved, the type of information obtained, and the personnel and equipment required.—LOCKWOOD, KESSLER & BARTLETT, INC., 38 E. BAYVIEW AVE., GREAT NECK, N. Y.

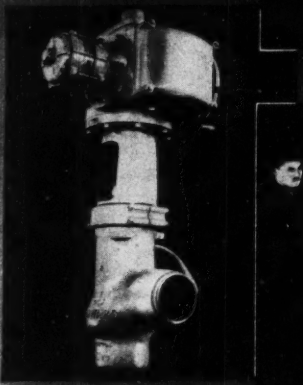
Snow-melting systems—A study of 50 snow-melting systems has been compiled in a 36-p bulletin entitled "Byers Wrought Iron for Snow Melting Systems". The bulletin traces the growth of these systems, and contains 83 illustrations, mostly showing the systems either operating or being installed. Eight piping layouts for a variety of installations are included. Text covers: Design, piping proper-

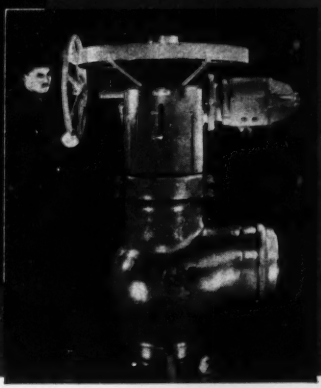
(*Continued on page 95*)

LIMITORQUE









Photos courtesy Edward Valves, Inc.

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ties, use of antifreeze, paving design and fill, fabrication and installation, installing and operating costs, operating practices, controls, and auxiliary units.—A. M. Byers Co., 6th & Bingham Sts., Pittsburgh, Pa.

Blocks and sheaves—Complete line of wire-rope blocks and sheaves is described in this 24-p catalog. Information includes block number, capacity in tons, number of sheaves, rope size, and weight of each block. A section is included on how to figure line parts, in which are illustrations, ratio tables, and formulas designed to make reeving and line-part figuring easy for riggers.—American Hoist & Derrick Co., 63 S. Roberts St., St. Paul 1, Minn.

Central-mixing—"Twelve Ways to Set Up for Central Mixing" is the name of a new 4-p pamphlet. It is designed to show the economies and production that can be obtained through pre-mixing and delivery of concrete in non-agitating equipment. Twelve different types of central-mixing plants are illustrated and described briefly.—Dumpcrete Div., Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio.

Vibrators—Bulletin 511 (8 pp) describes features of the Stow concrete vibrators. The complete line is listed in detail explaining specific uses and specifications of each model. Other data cover flexible shafting; vibrator heads; accessories; and a description and specifications of the Stow vibrating screed.—Stow Mfg. Co., Binghamton, N. Y.

Welding design manual—Third printing of "Manual of Welding Engineering and Design" is now available. This edition contains additional information including: Joint preparation by electric arc; additional design information; comparative data; 1951 welding alloy developments; chemical welding aids developed within the past year; and items of new procedural information.—Eutectic Welding Corp., Dept. P, 40-40 172nd St., Flushing, N. Y.

Photogrammetric instruments—Complete line of precision instruments is listed in this catalog. This includes: Stereoscopes, contour finder, height finder, photogrammetric computer, cameras, Sketchmasters, Lazy Daisy triangulator, Rectoblique plotter, Intervalometers, magnetic counters, timer, and related equipment.—Abrams Instrument Corp., 600 E. Shiawassee St., Lansing, Mich.

ADVERTISERS IN THIS ISSUE

Acker Drill Co. 92
American Lumber & Treating Co. 45
American Mutual Liability Ins. Co. 48, 49
Armco Drainage & Metal Products, Inc. 16

Baldwin-Lima-Hamilton Corp. 52
Borden Metal Products 22
Builders-Providence, Inc. 57

Cast Iron Pipe Research Assoc., Inc. 10, 11
Cement Gun Company 56
Century Geophysical Corp. 46
Chicago Bridge & Iron Co. ..... 2nd Cover
Chrysler Corp., Industrial Engine Div. 12
Cleveland Trencher Co. 58
Concrete Surfacing Machinery Co. 66

Deming Co., The 42
Dravo Corp. 59
Du Pont De Nemours & Co., Inc. 51

Economy Pumps, Inc. 38
Electric Tamper & Equipment Co. 92

Fenestra Building Products 63
Fuller Mfg. Co. 67

Gunite Concrete & Construction Co. 90

Harnischfeger Corporation 7
Hayward Company 90
Hercules Powder Co. 89
Hyatt Bearings Div., G. M. C. 35

Industrial Brownhoist Corp. 60
Insley Mfg. Corp. 20
Irvington Form & Tank Corp. 66

Jaeger Machine Co. 64

Keasby & Mattison Co. 6
Keuffell & Esser Co. 4, 5
Kinnear Mfg. Co. 70
Klevens Corp. 55

LaPlant-Choate Mfg. Co. 1
LeTourneau, Inc., R. G. 9
Leupold & Stevens Instruments, Inc. 2
Leyman Mfg. Co. 13

MacArthur Concrete Pile Co. 57
McCaffery-Ruddock Tagline Corp. 54
McKiernan-Terry Corp. 59
Monsanto Chemical Co. 91
Morin Mfg. Co. 44
Motorola, Inc. 90

Nat'l Clay Pipe Mfgrs., Inc. 69

Osgood Co. 94
Owen Bucket Company 14

Philadelphia Gear Works 93
Phoenix Bridge Co. 60
Pittsburgh-Des Moines Steel Co. 70

Raymond Concrete Pile Co. ..... 3rd Cover
Richmond Screw Anchor Co., Inc. 31
Robertson Co., H. H. 43
Roebling's Sons Co., John A. 86

Sauerman Bros., Inc. 64
Smooth Ceilings System Co. 61
Sprague & Henwood, Inc. 60
Standard Dry Wall Products 18
Superior Concrete Accessories 8

Timber Structures, Inc. 88
Timken Roller Bearing Co. ..... 4th Cover
Trailer Village, Inc. 55
Tri-Lok Co. 59

Wellman Engineering Co. 56
Wood Mfg. Co. 15
Worthington Pump & Machinery Corp. 3

Professional Services 83, 84, 85

SEARCHLIGHT SECTION

(Classified Advertising)

Employment
Positions Vacant 75, 76, 77
Selling Opportunities Offered 75, 76
Positions Wanted 76
Selling Opportunities Wanted 76
Employment Services 76

Special Services
Contract Work 76
Repairing 76

Educational
Schools 76

Business Opportunities
Offered 76

Notices
Proposal 72, 73, 74

Equipment
(Used or Surplus New)
For Rent 82
For Sale 76-83
Piling 82
Pipe 82
Rail 80
Surveying Instruments 80

Wanted
Equipment 80

ADVERTISERS INDEX 80

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Postscript from PITTSBURGH—

In the March 22 issue of ENR appeared a "Letter from Pittsburgh" (p 80). It reported some of the background behind the Allegheny County Sanitary Authority's efforts to get sewage collected and treated on a county-wide scale. Problems—technical, financial and political—affect or threaten progress, as on public works operations anywhere. ENR's letter recognized these influences.

Comes now another letter from Pittsburgh—this one written by John F. Laboon, chairman and chief engineer of the Sanitary Authority. Portions of his comment follow:

MR. LABOON: "When ENGINEERING NEWS-RECORD strays from the path of reporting true, factual information and even indulges in political romancing in Pittsburgh, then indeed faith is shaken and one can only repeat, 'To whom shall we turn?'."

• **Separate programs**—Originally, the authority's plan was for one treatment works to service 100 of the communities in the rugged 750-sq mi. county—plus two cities in adjoining Westmoreland County. But, as stated in ENR's letter, the master plan now seems impossible of arrangement; individual municipalities have shown a preference for separate programs.

MR. LABOON: "Your letter . . . might infer that there was a general movement in that direction, but this is not so. Sixty-one municipalities, including the city of Pittsburgh, with a total population of 1,165,000 or 82% of the total originally provided for on a county-wide basis is surely a substantial proportion.

"The municipalities which declined to accept the authority project, and which were originally included in the county-wide program are having their difficulties. Two joint authorities have already broken up over disputes and the four third-class cities of McKeesport, Duquesne, New Kensington and Arnold and a vast majority of the other municipalities originally included are only now giving serious consideration to preparation of plans and specifications."

• **"cannot participate . . ."**—Next best thing for the Sanitary Authority, failing 100% participation, was to proceed on plans to serve Pittsburgh and the other communities that have signed up.

ENR stated that communities not yet cooperating may participate at any time provided cost of added capacity does not increase the money burden on Pittsburgh.

MR. LABOON: "Four other municipalities have requested that they

John F. Laboon
". . . political romancing in Pittsburgh"

may be permitted . . . and many others would like to join . . . These municipalities cannot participate 'at any time' . . . because the interceptor system must be designed in sufficient capacity to accommodate only those municipalities which have executed a contract with the authority. To design the interceptor system of greater capacity than required for ultimate needs of the municipalities now under contract would serve to place an unfair financial burden on them. . ."

• **Why buy water?**—Last fall the Sanitary Authority saw a good buy in some going waterworks (ENR Oct. 5, 1950, p. 24). It sought to snatch them up. The PITTSBURGH PRESS was against the deal—as was Mayor Lawrence. Some opponents thought the price too high, as set by authority and water company engineers. The South Pittsburgh Water Co. finally withdrew its offer.

ENR's news story last Oct. 5 stated Mr. Laboon had said purchase of the waterworks would provide the authority with revenue to support bonds that will finance other work. And the "Letter from Pittsburgh" said the authority had delayed action on the offer.

MR. LABOON: "Anyone familiar with authority revenue bond financing and law knows that revenues cannot be diverted from the primary purpose of maintaining the purchased properties and to provide interest charges and amortization of the revenue bond issue. The authority negotiated the purchase price more than a year ago and presented its recommendations to the County Commissioners for official approval—necessary according to the Authority Act. The County Commissioners failed to act. The water company . . . withdrew its offer.

"The authority used the inventory and appraisal of Morris Knowles, Inc., and reports by Metcalf & Eddy, by E. E. Bankson and by Alvord, Burdick & Howson to check present value of the property. These are the engineers termed by the PITTSBURGH PRESS 'not disinterested' nor 'independent'."

• **What political differences?**—ENR has stated that rivalry between the chairman of the board of county commissioners and the mayor of Pittsburgh is thought in some quarters to add an extra factor of uncertainty to the future of the authority.

MR. LABOON: "The authority is unaware of any political differences."

Pittsburgh's contract with the authority provides that no construction be performed by the authority without the city's permission, and then not before plans and specifications are completed. Design has been under way since Feb., 1950; is to be completed in 1952.

MR. LABOON: "Surely this is not too long for proper planning of a difficult project to serve 61 municipalities and estimated to cost $60,000,000."

Metcalf & Eddy are doing the design of 25.5 miles of interceptor and the system's main pumping station as well as the treatment plant. The authority staff is designing 35 miles of tunnel interceptor. Treatment will be provided for 1970 population—150 mgd; this figure was misprinted earlier.

The earlier letter was published to provide perspective—economic and political background—for viewing an important engineering project. This informative correction and comment by Mr. Laboon is published for the same purpose.

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4. COMPOSITE . . . 5. GOW CAISSONS

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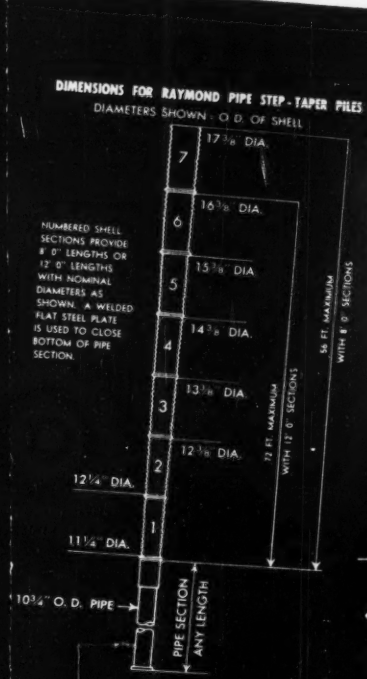
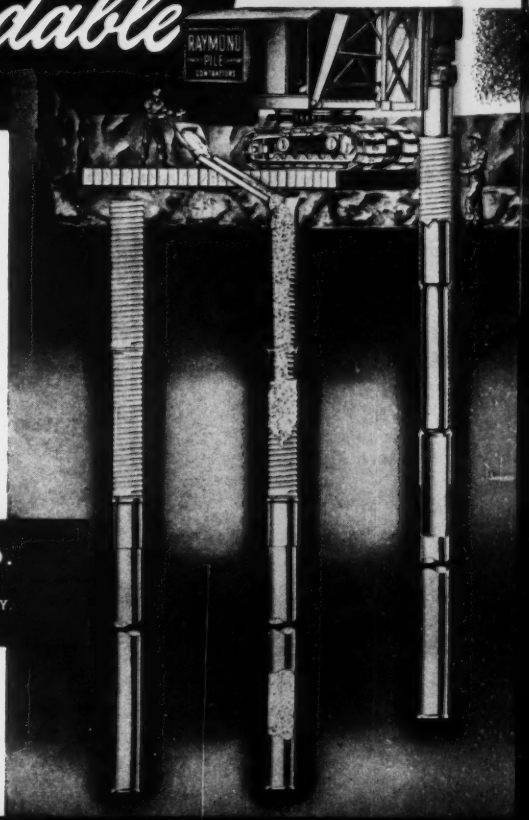


3. PIPE STEP-TAPER PILES

At the right, the pipe step-taper pile is being driven with the rigid steel mandrel. In the center the shell and pipe are being filled with concrete after having been driven to satisfactory resistance and inspected. At the left is a completed pipe step-taper pile.

Deep and Dependable



Raymond Pipe Step-Taper Piles are composed of an upper section of Step-Taper Shell Pile and a lower section of closed-end steel pipe pile. These piles are generally used to penetrate thick beds of soft soil to reach hard bottom at depths as great as 150 feet or more. The pipe step-taper pile is a most dependable pile available for reaching hard ground at great depths.

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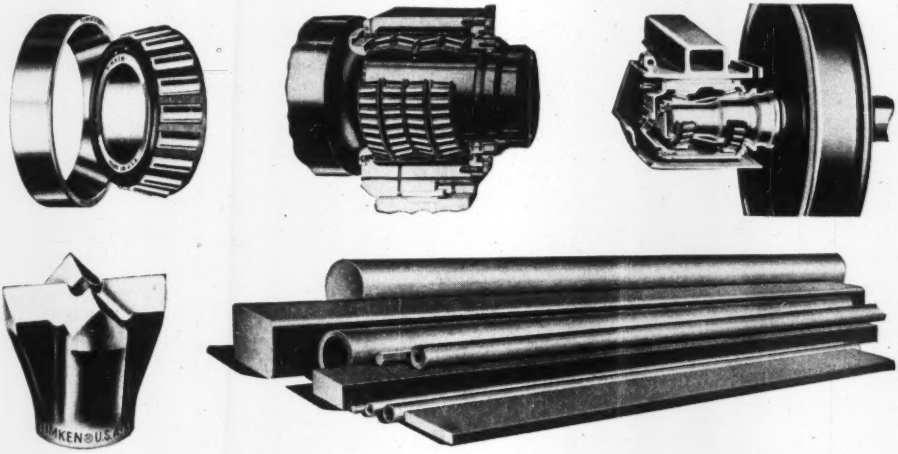

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